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## Contents

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<b>SOLID AND LIQUID GENDERS: FREQUENCY OF GENDER OVERLAPPING IN SOME OF THE CHARACTERS IN ANAND NEELAKANDAN'S <i>DURYODHANAN KAURAVAVAMSATHINDE ITHIHASAM</i> AND MT VASUDEVAN NAIR'S <i>RANDAMOOZHAM</i></b>	<b>6-10</b>
<b>Jameelathu K. A.</b>	
<b>UTILIZATION OF PLANTS IN TRADITIONAL ART FORMS OF KERALA - A SURVEY</b>	<b>11-20</b>
<b>M. K. Nazeema</b>	
<b>A NEST OF ENCHANTERS: A SCRUTINIZED EXAMINATION ON MAGIC AND WITCHCRAFT IN J K ROWLING'S <i>HARRY POTTER AND DEATHLY HALLOWS</i></b>	<b>20-23</b>
<b>Neena Kannan</b>	
<b>MIGRATION: AN ANALYSIS OF <i>REFUGEE BLUES</i> BY W.H AUDEN</b>	<b>24-27</b>
<b>Reshma T.M.</b>	
<b>UNDERCURRENTS OF REMINISCENCE: UNVEILING OF PAST IN KHALED HOSSEINI'S <i>THE KITE RUNNER</i> AND <i>A THOUSAND SPLENDID SUNS</i></b>	<b>28-32</b>
<b>Shahana Mol A. and Reshmi S.</b>	
<b>LIES THAT TELL THE TRUTH: AN EXPLORATION OF TRANSGENDER IDENTITY IN THE REALM OF MAGICAL REALISM</b>	<b>33-41</b>
<b>Fathima Thebshi K. and Reshmi S.</b>	
<b>THE EFFECT OF <i>AZADIRACHTA INDICA</i> IN BIO-ERADICATION OF SNAILS IN AQUARIUMS</b>	<b>42-48</b>
<b>Keerthana Jyothi and Dhanya Pulikkottil Rajan</b>	



# SOLID AND LIQUID GENDERS: FREQUENCY OF GENDER OVERLAPPING IN SOME OF THE CHARACTERS IN ANAND NEELAKANDAN'S *DURYODHANAN KAURAVAVAMSATHINDE ITHIHASAM* AND MT VASUDEVAN NAIR'S *RANDAMOOZHAM*

**Jameelathu K. A.**

Assistant Professor, PG & Research Dept.of English  
M.E.S. Asmabi College, P. Vemballur, Kodungallur

## ABSTRACT

Gender was not discussed in the past, as the concept of woman was not independently discussed. Religions restrained woman as an extension of man for his personal needs when man craved for company. Woman was created for breaking his loneliness and caused his breaking up from God, his Creator. Thus, woman was dehumanized, and her existence was totally neglected. Most of the literary works and epics portray woman as a parasite on man preparing and facilitating his epic and his 'tory'. Even if gender theories mark him to be domineering, men sometimes become a toy in the hands of women forgetting his religion -assigned role. Women, even though marked as the oppressed, sometimes prove herself to be the oppressor and the cause of major tragedies in men's lives. In Homer's *Odyssey* Odysseus who returns after Trojan war completing his ten years of voyage tests the chastity of Penelope, his wife, incognito even if he himself fathered Teledorus from a sea nymph. Anand Neelakandan a famous Malayalam writer brings about deconstructive perspectives on the different characters of our epics in his novels, *Ajaya*, the *Epic of Kaurava Clan* and *Kali*. In MT Vasudevan nair's *Randamoozham* also we see this gender overlapping in many of the characters. In many instances in the good/bad binary and male/female

binaries, the readers have found overlapping and definitely might have frowned at the binary overlapping. This is because some characters want to protect themselves from the inner struggles they undergo. M T's and Anand's work brood on the overlapping in gender and thus in this good/bad binary opposites. This paper tries to identify the solid and liquid genders and find out where this overlapping happens for some of the characters in different genders in these novels.

**Key Words:** Voyage, Chastity, Penelope

## INTRODUCTION

Gender studies indicate the study of masculine, feminine or queer behaviour in a given community, society or a field of study. The term sex refers to the biologically observable differences where as the term gender refers to the social expectations and roles. Even then biological sex can be socially constructed and masculine and feminine behaviours can be rooted in physiology as well. Gender concepts and roles are the result of a broad network of influences of society operating independently through the much interference of the people related. Anand Neelakandan's *Ajaya* The *Epic of Kaurava Clan* or *Duryodhana Kaurava Vamsathinde Ithihasam* and MT's *Randamoozham* narrate analytically the various characters of our great epic Mahabharata. The



readers of these novels are drawn towards the characters' mind and thereby understanding their real motive behind their actions. Far away from their Epic dimensions, the readers get a "them" through these novels and they disclose themselves in front of our eyes as someone very different from the name assigned to them by the writer. The dimension in which oral popularity affixed on the characters are brought to reflective analysis and that brings about a revelation where many idols break down, in their place new ones are constructed. Sometimes we can find a shift in their gender roles also. Sometimes this happens because there a shift in the gender roles occurs within the family through the process of identification as Freud emphasized as Socio -cognitive theory of gender development. This theory can be applied here as it applies to a life course time. Children's identification with the same sex parent takes a difference when they come across different experiences in their family life. From the Novels, Bhishma Vidura, Karna Suyodhana, Bhima, Yudhishtira and Ekalavya from the male side and Kunthi, Gandhari and Panchali from the female side are brought to analysis.

## OBJECTIVES

- To find out how often the shifting into different gender occurs in the selected characters.
- To emphasis whether this shifting of gender happens with the demand of the time if it is to the stronger side or as part of their helplessness if this shifting is to the weaker side
- To show how certain strengths and weaknesses are ascribed to their caste in spite of the kinetic ability and mental strength of some characters.

## GENDER OVERLAPPING IN THE CHARACTERS

Gender is something different from sex, as the second is a primordial one, in which one is fixed from birth. Gender is our acquired status, but gradually fixed upon us, the role that is given to us through our circumstances. Our urge to perform certain roles decide our gender and that is inadvertently stamped upon us by the society. It is our secondary identity. All of us have a lot of identities working upon us in our lives. Identities that we prefer at times are mostly contextual. The Socio-cognitive theory of gender development works upon this identity shifting or overlapping. Sometimes these identities will be layered in some people when the roles that we are expected to perform are many. . The novels Suyodhana, Kaurava Vamsathinde Ithihasam and Randamoozham, which is based on the Epic Mahabharata, is a storehouse of many such characters who shifts their gender occasionally to suit their circumstances. They recognize the importance of acting in a different gender other than what is fixed on through the ages. Sometimes it is reflexive in some persons, but is voluntary for some other characters.

Starting with Bhishma, the backbone of Kuru vamsha, his birth itself is a mystery as he is the son of river Ganga through Shanthanu his first name is Ganga Dutt Devavrathan but he is renamed as Bhishma when he facilitates his father's marriage with a fisher woman Satyawati and takes an oath to follow celibacy throughout his life. Strong as he is as a man he forgets and neglects his biological function as a male. But he initiates the marriage of the blind Dhritarashtra. Defeating Gandhara king he brings the princess of the country to Hastinapur to facilitate the marriage. He changes his mind to

kill Gandhari's brother Shakuni, when Gandhari pleads with him not to kill the boy in her face. He forgets his kshatriya masculinity there which reminds him not to leave an opponent who may later avenge him. Here, he rejects his reason and becomes the victim of emotion that causes the ruin of Kuru vamsha. A shift from masculinity to feminine soft emotions rises here when he takes the boy on his shoulder to take him along with the princess.

Vidura, the Commander in chief of Hastinapur is always in conflicting role, as there exists an approach -avoidant conflict in whatever he does due to his low birth. He is the son of Krishna dwaipayana through a servant so he is not self confident whenever he does something. He suffers ill treatment from different quarters due to his low birth. The respect with which Bhishma always regard him, shows the democratic sentiment of Bhishma, who later seems to insist on Vidhura's presence to relieve himself. He is Bhishma's second self, as Bhishma experiences the restrictions imposed on him by his ideal paternity, and Vidura's self doubt, when he looks after the affairs of the state, as he has culture imposed restrictions upon him, put both of them in moments of inner conflicts. In Anand's novel Pandavas hesitate to touch vidura, but Suyodhana hugs him. Suyodhana seems to have inherited this democratic spirit from Bhishma. In moments of self doubt and self conflicts, they cross their gender roles. Suyodhana always shows an egalitarian sentiment throughout. In Randamoozham, which is seen through Bhima's perspective, Suyodhana's indiscrete nature is highlighted and even then his egalitarian sentiment is applauded through Bhima's memories too. When Karna is laughed at and when Ashwathama is ill treated he comes to the rescue. Like a mother protects her children he protects

them. Here Vidhura and Suyodhana show a shift in their gender role.

A deconstructive reading of these novels show a topsy turvydom in the whole values ascribed to the Pandavas. Hypocritical or showing off of values are generally praised in the epic than real virtues depicted by Bhima, Karna and Suyodhana. The predicament of Karna and Vidhura has some similarities as both of them are ill-treated by the appraised group and they occasionally lose their masculinity and drift to feminine subordination. Karna's Kavacha and Kundala are his masculine symbols that are taken away through treachery due to his feminine virtue of giving away. Vidhura suppresses his emotions when Shakuni and Bhima insult him. Suppressing his masculinity, he threatens them he will inform Bhishma pitamaha of this insult. He is afraid of asserting himself and thus he is drifting away from his assigned gender role of a male. A peacemaker as he is, Vidhura doesn't possess a fixed gender and most of the time it drifts towards female or inter- gender.

Really the three sons of Krishnadwaipayana suffer this identity crisis. Drithrashtra, the blind son of Vedhvyasa is totally helpless, as he cannot bestow his masculine powers due to his physical disability. He cannot stay on his solid gender role assigned to him by the society due to this. When he hugs Bhima after the battle, his Kshatriya fury and his masculine strength unites, but even here he is cheated due to his disability. He had to leave his Rule to his brother Pandu even though he was the rightful heir to the throne as the eldest son. For a time he remains even genderless without any proper role to perform. It is Bhishma who brings him a bride obliterating even the race of the bride except Shakuni. Vidhura is genderless sometimes due to his low birth. Pandu, the next one assumes



the rule, but he is debilitated by a curse. Sage Kindama cursed Pandu that were he to approach his wives with the intent of making love, he would die. So he had only an outsider perspective about his own life. He was compelled to remain impotent due to this curse. The five sons that he call as his are not his, but of some gods'. He remained inter-gender throughout his life. When he comes back to his original gender, he dies. Sometimes revelations will be self-destructive.

Gender overlapping happens in many other characters in these novels and more significantly in the major female characters like Kunthi, Gandhari and Panchali. Kunthi is a mixed gender shifting from one gender to another within seconds. Sage Durvasa gives her the special boon as she attends to him with a special care. Then the reflexive irrationality of a masculine gender implores her to test it on Sun God and she begets Karna whom she disowns and discards into the river. There is no amount of emotion bestowed in this action. She legitimately uses this boon again with the permission of Pandu three times. She shows her intolerance when Pandu marries Madri, but later she endows her boon to Madri also who begets Nakula and Sahadeva. . When Pandu and Madri die, she audaciously enters Hastinapura to regain her power. Role changing from docile to fierce happens simultaneously to her.

Gandhari is really a complex character in the novel as she is uprooted from her country one day to be rooted in the life of a blind man and she blindfolds herself to wave herself with her newly gained husband disregarding her loss of her parents and her bridegroom's blindness. Using socio-cognitive theory of gender development, this act can be explained as the assertion of her masculinity to the many injustices done to her without any reason.

She is not interested in the newly gained positions, yet she uses it for self-assertion. Her resistance might have ended up as a backdoor secret. When it comes about her children she is perfect in her original gender.

Droupati or Panchali suffers for the ignorance of Kunthi as she answers Arjuna to share the prize with brothers when the latter refers Droupati as his prize. Automatically she becomes spouse to five brothers. Her brother Shikhandi is neuter and Arjuna defeats Bhishma placing Shikhandi at the warfront. Panchali is the real 'man' among Pandavas as she stand strongly for her womanliness. She is contemptuous of Kauravas and makes fun of them when they enter Indraprastha. When Sushasana insults her she calls Krishna for help as she doesn't believe in the masculinity of her husbands who caused her predicament. She knows that she is being treated as a commodity to put at stake, by her husbands. She is contemptuous of her husbands at their helplessness and irrational decisions. She rises up occasionally with her masculine mental strength.

## CONCLUSION

Analysis of these novels shows a shift in the gender roles of many male and female characters. When they mature themselves in years and mind their gender overlapping is more frequent than their immature days when they were a bit more solid about their gender. Vidhura's is mostly liquid as he stands always for the righteousness on both sides. He is neutral in his disposition. We can see that the good/bad binary and male/female binary fluctuates with different circumstances. It is not concrete as people believe in their moral concepts. Reflective reading of the novels is required to understand this shift in the binary opposites. Male and female

characters of these novels are not fixed in their gender roles. When they recognize their position and condition into which they are forced into, they occasionally drift into the opposites. Socio-cognitive theory of Sigmund Freud recognises a choice in human condition to select a gender in accordance with their social conditions and circumstances even when they should work within the God-assigned sex. Gender is the preferred societal role and it has a long range of manifestations. It can adhere to its sex assigned societal role or cross it to assert the preferences of its intuition and transgress the sex-assigned gender.

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## UTILIZATION OF PLANTS IN TRADITIONAL ART FORMS OF KERALA - A SURVEY

M. K. Nazeema

Department of Botany, MES Asmabi College, P. Vemballur

### ABSTRACT

A list of 19 plants belonging to 14 families, used in traditional and ritualistic art forms of Kerala has been compiled. The survey is based on a field specimen collection and on information gathered following interviews with various people and traditional artists called 'Aashan'. The plants are listed giving the parts used and according to their uses in different aspects of these arts such as makeup, costumes, extracts of pigments, etc. The species like *Curcuma longa*, *Indigofera tinctoria*, *Terminalia chebula*, *Sesamum indicum* possess therapeutic properties besides natural dyeing, cosmetic production etc. and are being used in traditional health care practices.

**Key words:** *Cocos nucifera*, *Curcuma longa*, *Indigofera tinctoria*, Kalamezhuthu, Kathakali, Mural paintings, Natural Dyes, *Oryza sativa*, Plant extracts, Traditional art forms.

### INTRODUCTION

The history of man and his discovery of art began around 6000 years ago where primitive man recorded his daily activities by etching on rock that was later called as pre-historic art, which caused the evolution of cave paintings made using blood, leaf, herb, charcoal and such impromptu materials. As man became more civilized, he used advanced techniques and discovered early form of art forms like they changed from rock paintings to wall paintings (mural paintings). The word

“mural” is derived from the latin word “murus” meaning “wall”. Murals refer to paintings embellished on visual components like the wall, ceiling, or other huge lasting surfaces. Ajantha cave paintings (200 BC) are an example, where mostly mineral based pigments were used on a lime plastered wall on cut rock surfaces (Ghosh, 1967). Earliest murals can be found at Badami (Karnataka), Sittannaval Jain cave temple (Tamil Nadu) and so on. In all views, with all ethics there is an interrelationship between man and nature (Lee, 1980). From ancient times itself plants and its items are extensively used in various art forms for diverse purposes.

India is a country rich in tradition of culture with unique and diverse cultural landscape such as sacred grooves, forests, rivers, mountains and water bodies (Laladhas, Preetha, & Oommen). Kerala is a land with rich biodiversity and geotopographical zonation. It can be reflected in the various forms of ritualistic art forms as well as performing arts that prevail even now a days in Kerala.

Learning about traditional and native art works can serve to pass on ecological knowledge while also contextualizing influence of other factors on traditional and contemporary art forms (Bequette, 2007; Gradle, 2015). Art forms plays a vital role in the sustenance and preservation of local

knowledge through its various components. The interrelationship of humans with nature has been described from several traditional societies and landscapes all over the world (Booih & Ramakrishnan, 1983)

## MATERIALS AND METHODS

The field survey documented in this study was performed by interviewing artists, *Kathakaliaashan*, *Kalamezhuthuaashan* and artists of respective fields during a period of one year and was conducted throughout different institutions and temples of Kerala. The taxonomic identity of each plant was confirmed and the nomenclature of the plants was updated by latest literature whenever it was possible. Plants are given below by their common name, botanical name, family name, followed by colouring component and parts used in different aspects of traditional art forms. The next mentioned information is the medicinal uses of the plants, parts used, and the claimed therapeutic action.

## RESULTS AND DISCUSSION

Nineteen plant species from various families were enlisted as a result of the survey. Among these plants, *Indigofera tinctoria*, *Cocos nucifera*, and *Curcuma longa* are using in all the three traditional art forms whereas *Oryza sativa* is using in both Kadhakali and Kalamezhuthu. A list of commonly used plants is given in the table with scientific name, family, part used and colouring components.

### 1. *Albizia lebbbeck*

Family: Fabaceae

Binomial: *Albizialebbbeck*(L.)Benth.

**Medicinal uses:** it is a good astringent. It is used to treat boils, coughs, ophthalmic disorders, flu, gingivitis and lung disorders. Prominently used in folk, siddha, ayurveda, and homoeopathic medicines. (karuppanan, Deepika, & Venugopal, 2013)

### 2. *Solanum torvum*

Family: Solanaceae

Binomial: *Solanumtorvum* Sw.

**Medicinal uses:** The leaf extracts show some antibacterial property, wound healing agent, analgesic of tooth ache, anti-helminthic activity, anti plasmodial activity, anti cancer. It is used in the treatment of asthma, dropsy, chest pain, chronic fever, difficult urination and worm infestation

### 3. *Indigofera tinctoria*

Family: Fabaceae

Binomial: *Indigoferatinctoria* L.

**Medicinal uses:** It used against human ailments such as Epilepsy, Nervous disorders, Asthma, Bronchitis, Fever, Stomach ailments, Liver, Kidney and spleen disorders, for Rabies prophylaxis, Skin diseases. It is also used against worm infections, Lice problem, against snakebites and to treat insect and scorpion stings etc. (Carmine, Paolo, & Bruno, 2000)

## List of plants used in traditional art forms of Kerala

<b>Kadhakali</b> <i>Indigofera tinctoria</i> <i>Cocos nucifera</i> <i>Curcuma longa</i> <i>Gmelina arborea</i> <i>Solanum torvum</i> <i>Oryza sativa</i> <i>Terminalia arjuna</i> <i>Seasamum indicum</i> <i>Corchorus capsularis</i>	<b>Kalamezhuthu</b> <i>Indigofera tinctoria</i> <i>Cocos nucifer</i> <i>Curcuma longa</i> <i>Albizia lebbeck</i> <i>Terminalia chebula</i> <i>Oryza sativa</i>	<b>Traditional Kerala style mural painting</b> <i>Indigofera tinctoria</i> <i>Cocos nucifer</i> <i>Curcuma longa</i> <i>Aristida setacea</i> <i>Phyllanthus eblica</i> <i>Gossypium herbaceum</i> <i>Garcinia morella</i> <i>Biophytum sps</i> <i>Bambusa Sps</i> <i>Seasamum indicum</i> <i>Areca catechu</i>
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Table 1: List of plants used in traditional art forms of Kerala



Sl no	Common name	Scientific name	Family	Colouring component	Part used
1	Neelamari	<i>Indigofera tinctoria</i>	Fabaceae	Indigotin	Whole plant
2	Coconut	<i>Cocos nucifera</i>	palmaea	-----	Whole plant
3	Manjal	<i>Curcuma long</i>	Zingiberaceae	Curcumin, curcuminoid	Root
4	Kumizhumaram	<i>Gmelina arborea</i>	Lamiaceae	-----	wood
5	Puthirichunda	<i>Solanum torvum</i>	Solanaceae	-----	Flower ovary
6	Nellu	<i>Oryza sativa</i>	Poaceae	-----	Rice bran, seed
7	Ellu	<i>Seasamum indicum</i>	Pedaliaceae	-----	Seed, seed oil
8	Jute	<i>Corchorus capsularis</i>	Malvaceae	-----	Fibre
9	Vaaka/poovaaka	<i>Albizzia lebeck</i>	Fabaceae	-----	Leaf
10	Maruth	<i>Terminalia chebula</i>	Combretaceae	Chebulinic acid	Gum, wax
11	Iyyampullu	<i>Aristida setacea</i>	Poaceae	-----	Inflorescence
12	Nelli	<i>Phyllanthus emblica</i>	phyllanthaceae	-----	Gum, resin
13	Cotton/paruthi	<i>Gossypium herbaceum</i>	Malvaceae	-----	Mature fruit
14	Kadukka	<i>Terminalia arjuna</i>	Combretaceae	Arjunic acid	Resin
15	Iravimaram	<i>Garcinia Morella</i>	clusiaceae	moreollinn	Gum, resin
16	Mukkutty	<i>Biophytumsp</i>	Oxalidiacea	-----	Whole plant
17	Bamboo/mula	<i>Bambusasps</i>	Poaceae	-----	Stem, internode
18	Adakka/kavungu	<i>Areca catechu</i>	Palmaceae	-----	Wood
19	Poonilavam/ilavam	<i>Ceiba pentandra</i>	Malvaceae	-----	Gum, resin/wax

Table 2: Common name, binomial, family and useful part of the plants

1. *Curcuma longa*

Family: Zingiberaceae

Binomial: *Curcuma longa* L.

**Traditional medicinal uses:** It is taken as the blood purifier and is very useful in the common cold, leprosy, intermittent, affections of the liver, dropsy, inflammation and wound healing. The rhizome of turmeric plant is highly aromatic and antiseptic. Sweetened milk boiled with the turmeric is the popular remedy for cold and cough. It is given in liver ailments and jaundice. (Ammon & Wahl, 1991)

**Dye:** It is used for dying paper, silk wool etc. The powdered rhizome of this plant is used as a condiment and as a yellow dye.

2. *Gmelina arborea*

Family: Verbanaceae

Binomial: *Gmelina arborea* Roxb.

**Medicine:** It promotes digestive fire and is a purgative. It manages vertigo, It is also good for hair and rejuvenating, inflammation, vata disorders, pain, piles, fever, heat and toxins. It is aphrodisiac in nature.

6. *Cocos nucifera*

Family: Arecaceae

Binomial: *Cocos nucifera* L.

**Food:** Oil obtained from coconut is used as cooking oil and is having high nutritional value. Desiccated coconut used in making of curries, bakery item and for making coconut milk. Palm wine or 'Lamhanok' is made from coconut. Fermented sap is used as an alcoholic beverage called 'Toddy' (Manisha & Shyamapada, 2011)

7. *Corchorus capsularis*

Family: Malvaceae

Binomial: *Corchorus capsularis* L.

**Medicinal uses:** The leaves are used to treat appetite, digestion as a laxative stimulant. The infusion leaves reduce fever. The root and leaves used in dysentery.

8. *Terminalia chebula*

Family: Combretaceae

Binomial: *Terminalia chebula* L.

**Medicinal uses:** Triphala which is used in many ayurvedic formulations, rich in tannins. Dried fruit powder used as medicine. (RN & Sudhamoy, 1929) The ethanolic extract of its fruits provide cardio protective effect..

9. *Aristida setacea*

Family: Poaceae

Binomial: *Aristida setacea* Trin.

**Fiber:** Used for making painting brushes and also used to make brooms in some areas.

10. *Oryza sativa*

Family: Poaceae

Binomial: *Oryza sativa* L.

**Food:** Rice is one of the major staple grains of the world. Asian and South East Asian cuisine is majorly dependent on rice. (Vaughan, H, & K, 2003)

11. *Terminalia arjuna*

Family: Combretaceae

Binomial : *Terminalia arjuna* (Roxb.) Whight & Arn.

**Traditional medicinal uses:** In ayurveda text ashtangahrudaya, written by Vagbhatacharya, *Terminalia arjuna* is mentioned as a topical applicator against wounds, hemorrhages and ulcers. (RN & Sudhamoy, 1929)

12. *Seasamum indicum*

Family: Pedaliaceae

Binomial: *Seasamum indicum* L.

**Medicine:** The leaves and trees are astringent used in the treatment of infant cholera, diarrhea, dysentery and bladder troubles. (Nayar & Mehar, 1970). Seeds are diuretic, tonic for kidneys and liver. Treatment of hair loss, dry cough, stiff joint, etc.

13. *Phyllanthus emblica*

Family: Phyllanthaceae

Binomial: *Phyllanthus emblica* L.

**Medicinal uses:** It is used in ayurvedic medicines. The fruits, which are of both dietary and medicinal use, are shown to possess myriad medicinal benefits and to possess anti-aging effects. It possesses properties that can combat age-related illness such as cancer, diabetes, cardiac ailments, renal failure, immune suppression, arthritis, cataracts, and wrinkling of skin.

14. *Gossypium herbaceum*

Family: Malvaceae

Binomial: *Gossypium herbaceum* L.

**Medicinal:** Cotton seed is used as pain reliever, as a nervine tonic in treating of head ache and migraine, the decoction of the seeds were given in intermittent fever. Seeds were also used in epilepsy and as an antidote to snake poison. The juice of the leaves and the decoctions of the seed were used in dysentery. Leaves, root and seeds of *Gossypium herbaceum* were used to augment labour, in retention of placenta and as emmenagogues.

15. *Garcinia morella*

Family: Clusiaceae

Binomial: *Garcinia Morella* (Gaertn.) Desr.

**Medicine:** Dried up fruit slices are valued as a traditional remedy for dysentery. In ayurvedha the fruits are used in dysentery, gastritis etc. and is said to have anti-inflammatory properties. When the bark is cut it exudes yellow resin called Gamboge, that is used in food, medicines and paints.

16. *Biophytum sensitivum*

Family: Oxalidaceae

Binomial:

*Biophytum sensitivum* (L.) DC.

**Medicinal uses:** It is medicinally used in traditionally Ayurvedic and Siddha system. It is one of the auspicious herb that constitute the group "Dashapushpam" an Ayurvedic formulations. Ayurveda recommends its powder in gonorrheal infection and lithiasis and the decoction is advised for amenorrhea and dysmenorrhea. In siddha system, the grounded leaves are given along with butter milk for diarrhea, grounded seeds are applied over wound and ulcer, the samoolam of this plant is mixed with honey and are given for cough and chest congestion.

17. *Bambusa vulgaris*

Family: Poaceae

Binomial: *Bambusa vulgaris* Schrad. ex J.C. Wendl.

**Medicinal:** Black shoots of the bamboo is used against kidney and spleen disorders. Roots and shoots of the plant are used in treating venereal diseases and even cancer.

18. *Areca catechu*

Family: Arecaceae

Binomial: *Areca catechu* L.

**Medicinal:** Powdered areca nut is used as a constituent in some dentifrices, the drug of it used as a decoction. Betal palm is an astringent, stimulant herb that relieves hunger, abdominal discomfort and weariness. It kills intestinal parasites and other pathogens.

## CONCLUSION

In traditional art forms such as *askalamezhuth*, *mural painting* and *kadhakali*, there are nineteen locally available plant products are used. Four of these plants shows dyeing properties. Some others are source of food, medicinal property, textile industry, cosmetics etc. These plants were used in the arts because of their technical suitability, easy availability and their medicinal property.

Ø The dyeing property of these plants is used for colouring purposes.

Ø Local availability and technical suitability is the factor for selecting these plants in these art forms.

Ø The medicinal properties of these plants make them harmless raw materials in the makeup of art such as *kadhakali*.

Ø The major plants used are *Indigofera tinctoria*, *Curcuma longa*, *Cocos nucifera*, and *Gossypium herbaceum*.

Ø *Indigotin*, *Curcumin*, *curcuminoid*, *Chebulinic acid*, *Arjunic acid*, and *moreollinn* were reported as the major colouring compounds extracted from the reported plants.

India has rich biodiversity providing us with enough raw materials which are least explored.

(Ghokale, AU, RA, & SR, 2004). Natural dyes are nowadays in demand not only in the textile industry but in cosmetics, leather, food and in pharmaceuticals. Therefore, it is essential to explore and proper documentation of this traditional knowledge. The plant yield, dye concentration can be improved by biotechnological methods.

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## **A NEST OF ENCHANTERS: A SCRUTINIZED EXAMINATION ON MAGIC AND WITCHCRAFT IN J K ROWLING'S *HARRY POTTER AND DEATHLY HALLOWS***

**Neena Kannan**

MES Asmabi College, P. Vemballur  
neenakannan197@gmail.com

### **ABSTRACT**

Enchantments intended to gain mastery over the universe, the magic, spell and sorcery are part of traditional beliefs that guide us to discern the universe, life, death and range of human possibilities. Those former beliefs and customs were replaced by false notions and mind-sets. Modern age treats magic as a medium to earn personal benefit than a welfare universe. In the novel *Harry Potter and Deathly Hallows*, Voldemort the antihero of the novel tried to master over the three deathly hallows which symbolize the modern man seeking unnatural powers or magical objects to attain a superior status over a hierarchy. Sorcery is the extreme end of any magical powers that lead a greed man to neglect the path of nobility. He uses all his nerves to fulfil his thirst for money and power. Even the current news about the murder of two women as a part of sorcery points out the fact how this greed for money and power makes the man inhumane or a monster. The entire novel series of *Harry Potter* portray a wizarding world of good and evils and their conflicts for magical objects that are crucial for their existence.

**Key Words:** Resurrection stone, Elder wand, Animagi Transformation, Metamorphmagi and Parseltongue.

### **INTRODUCTION**

The terms witchcraft and sorcery are different in their meaning and practice. Though we feel similarity in their concepts, both are entirely different from that of another. Sorcery is attributed to the goodness of whole universe, on the other hand witchcraft is attributed to the black arts for selfish needs. Atharvaveda, the sacred text of Hinduism illustrates mantras of both black and white magic. White magic is an art of defense and black magic is an offensive one. From premature ages witchcraft and sorcery were familiar. Its practices were common on those days. But when its practices and belief crossed the boundaries of government authorities, they banned these customs and rituals. The goal of an enchantment is the spiritual maturation. An anomalous force is safeguarding the whole universe from the fist of fearsome beast.

The novel portrays the merits and demerits of a wizard world pointing out all the factors that influences spiritual and material world of human. Though this is an imaginary story up on an imaginary world, this is also a hidden satire up on modern society which lacks moral values in mind. A spiritual and material conflict rises among the minds of modern man where they give more significance to their material prospects. Men who give too much importance

to material prospects degrade moral values to extract more power and money. Magicians themselves cannot create money out of thin air but they can increase the chance of attracting wealth out of various magical practices.

## OBJECTIVES

- To analyse whether the novel explores a magical world capable of performing mind blowing acts in every perspective through the wings of imagination.
- To find out whether it differentiates sorcery and witchcraft inferring all its advantages and disadvantages and it hints a satire up on the motives of modern man to acquire a higher prospect by any means.

## METHODOLOGY

Magic in fiction is a device, which helps the writer to extend the plot of fantasy in progressive manner. It provides a space to enhance the fiction through techniques of exceptional supremacies. Various limitations are forced on every magician to create conflicts and further progress in a fiction.

### Analysis

The novel analyses a wizard world which encompasses positive as well as negative aspects of human mind. People sacrifices their innate humanity for selfish desires. “We are all human, aren’t we? Every human life is worth the same, and worth saving.” (Kingsley Shacklebolt). Every man is worth to this world. Black arts take the life of innocent for selfish purpose.

### Deathly Hallows

Deathly Hallows are the three mystical devices that was supposed to be manufactured by death himself and was given to the Peverell brothers. The person who owns all the three

deathly hallows can sovereign the death, is the belief. Elder wand, Resurrection stone, and Cloak of Invisibility constitutes the Deathly Hallows. Elder Wand is the death stick which possesses immense power than all other magical wands. A person who has the potential to accept death can sole the mastery over Elder Wand.

Resurrection stone is a magical object that enable its master to bring back the life of a dead person. One cannot bring back the life of a dead one with its full vigor and vitality. He can only bring back the mere image of the dead one. The practice on Resurrection stone does not bring happiness and rhythm in the life of its practitioner but it constantly reminds him of the bitter and sour reality of the mortal world. Cloak of Invisibility makes its wearers get invisible from the eyes of his fellow beings. This mere magical object is a perfect example that reflects the degraded morality of a society that it facilitates its wearers to break out norms and regulations set by the authorities. The story of Peverell family paints a dramatic picture of human beings aspiring to befit a superior rank. The list of magical abilities possessed by the characters in *Harry Potter* are Animagi transformation, Metamorphmagi, Parsel tongue, Legilimency Occlumency, Apparition, and Disapparition.

### Animagi Transformation

The novel portrays the distinctive ability of magicians to transform in to an animal form which is purely acquired and not hereditary. It is a rare skill of magicians to acquire such transformations. An animagus can remain as an animal until he wishes for a transfiguration. An animagus who acquired the skill of transformation can change his human form in to an animal suitable to his personality. This means that an animagus does not have a choice of his

own, he automatically take the shape of an animal that reflects his inner self. An animagus has complete authority over his psyche, consciousness and cognizance, though he is in the shape of an animal.

#### Metamorphmagi

A Metamorphmagus has the ability to convert his physical form fully or partially to any form that he wishes. This skill is partially hereditary and acquired. Their powers get easily affected by the inner emotions, thoughts and conflicts in their minds and are reflected in their appearances

#### Parseltongue

Parseltongue is purely a skill of hereditary. It is the language of snakes. It helps its practitioner to secretly communicate with other parseltongues or enable him to control the mind of a snake.

#### Legilimency and Occlumency

Legilimency is a form of talent that enable its practitioner to travel through the mind of a person and explore his inner self. It is a sort of mind reading. Experts make use of telepathy as a means of communication. It helps him to read the emotions, secrets in one's mind. Occlumence defend the power of legilimence. They control their mind in such a way that legilimence could not trace their inner self. Experts in occlumence plant duplicate self in him to prevent the tracing of exact emotions.

#### Apparition and Dis-apparition

It is a form of teleportation of the person from one place to another but is restricted to a short distance. For a long distant journey, he must find out other means of transport like broom stick. There are certain norms in wizard world. The person needs a license to practice apparition and dis-apparition, as it is an intrusion up on other

people's privacy. Most of the houses in the wizard world are protected with anti-apparition spells that help them protect from other intruders who spoils privacy. Majority of the magic, norms and systems portrayed in the novel are her own imagination and helps the reader fly in thin air through the wings of imagination.

#### Horcruxes

Horcruxes an important term highlighted in the novel attributed the attitudes of a savage man towards his fellow being. In a wizard world, the purpose of creation of horcruxes is to expand the lifespan of a soul, by distorting one's soul in to several parts. Though horcruxes increases the life of a soul, the physical appearance of its practitioner will degrade to such an extent, that one could not recognize him as a human any more, as manufacturing of horcruxes is terrible as well as burdensome procedure

### CONCLUSION

Like all other fantasy fiction, *the Deathly Hallows* also pictures a mysterious world which demands certain magical objects crucial for the existence of a wizard or witch. The novel makes the reader fly over a mysterious fantasy world through the wings of his imagination. The Elder Wand, Resurrection stone and Cloak of invisibility are the three deathly hallows created by the god of death. The mystery about the deathly hallows gives us a hint about the deep evil notion behind the creation of it. Actually, this was given as a gift as well as a trap to Peverell brothers, by the god of death; for being miraculous, they get away from the hands of death, impersonated as a deadly dangerous river. A person who masters all the three hallows master the death himself. The possession of these hallows invites Peverell family to invite their

own death. The villain Voldemort in Harry Potter resembles the dark cruel and animal nature of a modern man in twenty first century. They perform dark arts to attain a higher status in a social and economic hierarchy. The present perspective or attitudes of modern man is worse than ever. Their humanity is degraded in to such a low to sacrifice a human for their personal benefits.

Money is the most important factor to climb a higher status. Rowling presents before her reader, the control and power exercised by the wizard world through her fantasy novel. She draws a painting of social evils, inequalities, injustices of the pre-dominant. The cases of murder in the name of sorcery are getting known day by day.

The theme witchcraft is prevalent in the present century as it is done secretly by its practitioners. They sacrifice the lives of innocent human beings for their selfish needs. This is a kind of psychological disorder that seems to require a proper treatment. Assumptions regarding witchcraft or sorcery vary from person to person, like a coin that has two sides. It is up to the mind of a person, his perspectives, his beliefs, environment and moreover his social background that moulds the personality of a

human being. Ideas about mischievous human sacrifices and notions comes to the mindset of men from the earlier ages were these customs and rituals practiced in common. Every man is mortal; immortality is a distant dream to men. Men do everything good and wrong to lead a life of prosperity, the aim of each sorcery is to accumulate wealth.

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## MIGRATION: AN ANALYSIS OF *REFUGEE BLUES* BY W.H AUDEN

**Reshma T.M**

MES Asmabi College P.Vemballur, Thrissur, Kerala.

### ABSTRACT

Today migration is not an unheard thing. Actually, it is considered as a normal human activity. People used to move from one place to another for several reasons. Higher education, economic issues, climatic problems, political, religious upheavals are some of the reasons. Everett Lee in his theory of migration has proposed certain factor that leads to the migration of people from one region to another and these migrations may affect them both mentally and physically. The world considers them as refugees. Without considering them as human being, people mistreat and think them as an intruder to the new world. But they are very much aware of their situations, at the same time looking forward to this world to help them. In every migration optimism is the booster thing that leads them to go ahead. They have a strong belief, that something positive will happen somewhere. This article is an analysis of *Refugee Blues* by W H Auden.

**Key words:** Migration, Refugee, Refugee Blues,

### INTRODUCTION

“No one leaves home unless Home is the  
mouth of a shark”

- Warsan Shire, *Home*

Home is a magical place, where every being feels good, a place where we create our memories and dreams. Home is not just a building. Our nation is our home. We enjoy the protection of our parents, their love while we are in our home. The same feeling is there when we think about our country.

Like our own home people love their nation, enjoy the protection given by its laws. Like home, our nation is also a feeling for us. But there are lots and lots of people, who want to get out of their home and their nation. Not just because they hate it but fate made them to think so and they start to migrate to somewhere. They leave behind all the luxuries of life and just look for a safe shelter in some other places or countries. They suppress all their dreams within them and struggle for the survival. Many of them killed physically during their struggle and others lead a lifeless existence.

### Objective

Though the problems of the refugees are well known to the world, no one is ready to help them or raise their voice for the refugees. Most of them in this world knew that refugees are thrown out of their native place because of some problems there and seeking shelter in some other places, nothing more than that. The objective of the article is to explore the various problems related to migration and psychological development of Jewish refugees.

### METHODOLOGY

Everett Lee in his Theory of Migration has pointed out some factors which affect the migration which includes factors associated with the place of origin and destination, intervening obstacle and personal factors. In each of these cases there are some positive and negative factors which affect the process of migration. He also points out a sense of uncertainty or ignorance for the migrant in the new

area. For the refugees, as they have a long association with their own homeland, they are comfortable there. But in the place where they seek some shelters may have a sense of being uncomfortable. In other words, the migrant has no problem or feel comfortable as they have a close relationship with their homeland. But they fail to assess the positive and negative factors in the area of destination.

### Analysis

Simply speaking migration is the movement of people from one geographical location to another. Migration can be voluntary or forced. Voluntary migration can be undertaken by the free will of the person. There are chances of political, social and economic reason for this. In most of the voluntary migration people move to another place in search of better economic condition or housing. People often move from their native place to another in the hope of getting good job opportunities which offers either good salary or better working environment or sometimes both. Some people migrate to another for higher education which demands less cost. There are few others who go to another country to explore the place. Forced migration is one in which people are directed to flee from their motherland to somewhere where they will get some shelter. It is more painful as they are not moving with their free will. They move because of natural or environmental problems, chemical or nuclear disasters, famine or development projects, political-religious upheavals etc. They have no other choice but to move to a new place. They leave behind all their belongings, their home, their job, their dreams and everything and seek shelter in some other places. There after they spend their life in camps, asylums, or some other settlements which worsen their condition because there they might have to face some other

challenges or threats like pandemics. They have to start everything anew. But most often their condition is more vulnerable in the new places where they consider as an 'unwanted outsider'. Natives of the foreign land treat them as an intruder to their comfortable life, as an unwelcomed guest.

"I have heard it said we are the uninvited.

We are the unwelcome" (Hosseini Sea prayer)

The native people of the land always watch them with a suspicion. There arouse a tension in every walks of life in the new country. There will be problems of overpopulation. Fear of sharing the natural resources of the country is also another issue that create a tension between the 'guest' and the 'host'. There will be cultural and language differences between the people living in same country. The refugees have to face racial, economic and social discrimination. They have no peaceful existence in both the places.

*Refugee Blues* is a poem by W H Auden, a prolific writer and one of the leading figures of the twentieth century literary world and he mainly deals with the themes like love, religion, political and social issues. The poem discusses the pathetic life condition of a migrant, a Jew of the World War II. The war left them with no choice. In their homeland they were considered as something vulnerable. The poem highlights the desperate life conditions of Jews where they have lack of choice and lack of identity. Written in 1933 the poem explains the problems faced by them from Nazi Germany.

History of Jews, their nation, religion, culture can be traced back to the earliest centuries. It is said that there is record of Judaism in Greek records. Israel is considered as their original home, though they are widespread throughout the different part of the world. They enjoined prosperity during the

middle ages in Europe and during the Ottoman period. Latter they faced many problems and migrated to other parts of the world. Soon they moved back to their homeland during 1870s and 1880s. But in the Nazi Germany, under Adolf Hitler, the situation of Jews became more severe. Nazi rule lead the migration of Jews from Europe to Palestine, to the United States and to the Soviet Union. Jews were massively killed in the many part of the world. Due to the antisemitic policy Jews were increasingly persecuted and that became an official Nazi policy. Around Six million Jews were killed under Nazi Germany.

The poem begins by introducing a city, a city of ten million people. Some are living in better conditions and some others in little life situations. But for these refugees, there is no place to leave on.

Say this city has ten million souls,  
Some are living in mansions, some are living in holes:  
Yet there's no place for us, my dear, yet there's no  
place for us. (Auden line 1-3)

The speaker of the poem even memorises their native place where they cannot go now. Unlike the nature got chance to bloom again every year, the man made documents like passport cannot recovered. The 'consul' considers them as dead as they have no passport, the committee ask them to return to their native place next year but they have no shelter right now, and in the public meeting the speaker said that "if we let them in, they will steal our daily bread" (Auden line 17). Even the animals were welcomed in to the new land, but there is no space for the German Jews. Birds and animals in the universe are celebrating their freedom. But these people have no freedom. The poem ends by saying a dream, a building with

thousand floors, windows and doors but actually, they are standing on the great plain in the falling snow, where ten thousands of soldiers marched to and fro looking for the couple. The speaker finds that he has lost his home, freedom and identity.

In the poem the speaker memorises their homeland, their beautiful life there but there is no space for them because they heard Hitler saying "They must die" (Auden line 20). They fled from the land; they may have some destination but did not find shelter anywhere. On their journey they may face problems from nature, from their fellow being. They have to suffer all these. They become tired physically and mentally because they are carrying the hatred of the world.

Without proper food and other basic necessities these people are wandering here and there. They are weak physically because they have no nutritious food. Their present situations in a foreign land, the attitude of the people there, the sense of insecurity, thoughts about future everything makes them mentally down. They may have lead a peaceful life in the homeland. But due to some forceful reason they flee from the land and in the new place they never get a warm welcome. Everyone in the foreign country might have a suspicious look towards them. They are lacking proper housing or other basic things. They may find it futile to think about a future. There is a sense of insecurity all about their thought process. They are actually looking towards the world, not for our sympathy but for our kind attitude towards them.

If the world clearly analyses the issue of migration, it is evident that migration create lots of positive things to the host country. Migration produces lots of man power to the host country, which they can utilise for their own benefit. They provide varieties of skills and ideas which helps the overall uplift of the nation.

It is impossible for us to forget Alan Kurdi, a three-year-old Syrian boy who drowned on his way to take a shelter somewhere as he is facing severe problems in his homeland. His dead body lying on the beach created great impact on people all over the world. But there is no change for the frightful condition of the refugees. Still they are the unwanted group. They are homeless, uprooted

### CONCLUSION

When the refugees look towards the world it is evident that they have a hope towards their future. They may have a strong belief that

something positive will happen somewhere. It is the duty of others as a human being to help them. Considering them as human being is the first step towards their upliftment. Helping them means, not just their material welfare, but the protection of their rights, their cultural assets and identities.

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## UNDERCURRENTS OF REMINISCENCE: UNVEILING OF PAST IN KHALED HOSSEINI'S *THE KITE RUNNER* AND *A THOUSAND SPLENDID SUNS*

**Shahana Mol A. and Reshmi S.**

PG and Research Department of English, MES Asmabi College, P. Vemballur,  
Thrissur, Kerala - 680 671  
shahanasalam13@gmail.com

### ABSTRACT

Memories can be dangerous as they remind us of the past. In a way, memories are the recollection of gashes as well as happiness. Literature is a splendid realm that traces the recollections of the past. This paper aims to dissect the theme of 'recollection' or 'reminiscence' in Khaled Hosseini's novels *A Thousand Splendid Suns* and *The Kite Runner*. The act of returning home, the significance of home, and thinking of home are substantially seen in his novels. The Afghan-American experiences prompt Hosseini to address the childhood trauma in Afghanistan, issues of immigration, and the present scenario of Afghanistan. *The Kite Runner* (2003) interweaves the tale of two Afghan boys, Amir and Hassan, who were parted by the Afghan civil war. Returning home becomes an act of redemption for Amir to compensate the act of betrayal of his best friend Hassan. *A Thousand Splendid Suns* describes the relationship between two Afghan women, Laila and Maryam, and their lives under the Taliban regime. The paper intends to show how reminiscence works as an effective tool in enhancing the aesthetic effect of the novels under consideration.

**Keywords:** Reminiscence, Afghanistan, Return to the homeland, Memory Studies, Diaspora, Exile.

### INTRODUCTION

*There is no present or future,  
Only the past, happening over and over  
again.*

- EUGENE O'NEIL

Memories are the recollection of scattered images of the past that are stored in the subconscious mind. Memory studies is a convergence field, with contributions from political philosophy, cultural history, media archaeology, social psychology, and comparative literature. It emerged as a new and different way for scholars to think about past events in the twentieth century. Memory was always a preoccupation of social thinkers, though it was only in the late nineteenth and twentieth centuries that a distinctively social perspective on memory became prominent with the use of the term 'collective memory' by Hofmannsthal in 1902 (Olick and Robbins, 1998). Memory research is closely linked to many issues at the forefront of contemporary political debate, particularly the political effects of the continuing presence of past hurts in the present (Radstone, 2008). Scholarly interest in memory has resurfaced since the 1980s. While psychologists were more interested in memory from



an individual perspective, sociological theorists emphasize the social and cultural bases of shared memories (Pennebaker, 2013). Memory studies is thus a multidisciplinary field of studying a ‘traveling concept’ as defined by Mieke Bal.

In Khaled Hosseini’s *The Kite Runner* and *A Thousand Splendid Suns* traumatic memory and cultural memory interplay. Looking back to the roots and lamenting over their separation, the characters undergo cultural memories, childhood memories and traumatic experiences. Returning to home land becomes the representation of redemption as well as of remembrance for the characters in the selected works. The memories of prosperous Kabul were part of Hosseini’s memory and most of the characters, who tussle between childhood memories and present are his own self representation Hosseini uses memory as a tool not only to remember the past or to recollect the cultural roots but also to criticize the present scenario of his homeland. His pen turns into a weapon which can attack even the throws built of diamond.

### Objectives of the Study

The study tries to designate the position of memory studies in Khaled Hosseini’s novel *The Kite Runner* and *A Thousand Splendid Suns*. It further tries

- \* To employ memory studies as a critical tool to portray the traumatic experiences of the central characters.
- \* To explore the experiences in the past and to interconnect with the present day conditions.
- \* To analyze ‘home’ as a significant metaphor in the selected works.

### METHODOLOGY

Memory studies is a multidisciplinary field which combines intellectual strands from anthropology, education, literature, history, philosophy, psychology and sociology, among others (Roediger & Wertsch, 2008). Eric Hobsbawm and Terence Ranger’s *The Invention of Tradition* (1983) have also inspired much research in the area of memory studies (Hoelscher & Alderman 2004, p.349). Other early key texts in the field of memory studies include: French philosopher Henri Bergson’s *Matter and Memory* (1896), Paul Ricœur’s *Memory, History and Forgetting* (2004), French historian Pierre Nora’s *Realms of Memory* (1996-8) and Jacques Le Goff’s *History and Memory* (1992). For these writers, the concept of memory destabilized grand narratives of history and power, as “memory, remembering and recording are the very key to existence, becoming and belonging” (Garde-Hansen, 2011). Halbwachs argued that memory is not simply an individual phenomenon, but is relational in terms of family and friends, and also societal and collective in terms of the social frameworks of social groups.

Memories are part of a larger process of cultural negotiation, which defines memories as narratives and as fluid and mediated cultural and personal traces of the past (Sturken, 2008). This suggests the fluid nature of memories and enforces representation of the past in personal and social action. Whereas Halbwachs used the term ‘collective memory’, many students of literature and some philosophers prefer the term ‘cultural memory’, while historians and social scientists mostly use the term ‘social memory’. In practice these differences in terminology are pointless to diverging definitions of communal memory, than to different approaches to studying it. Halbwachs

chose an approach based on sociological categories – family, class, religion. Many students of ‘cultural memory’ come to the subject with a strong interest in recollection, repression, and the subconscious, sometimes informed by psychoanalytic thought, and trace these in literary and visual sources. Both because of a lack of traumatic experiences generate fear and the pleasant experiences create nostalgia in the characters’ minds. Various aspects of memory studies are seen in the selected works for study.

### Textual Analysis

Khaled Hosseini’s books are mostly contemplated with the diasporic features and nostalgia over homeland. *The Kite Runner* is primarily a historical novel that focuses on the lives of Afghans, the collapse of monarchy and the rise and fall of Taliban. As a genre, historical fiction focusses on a particular setting and the social conditions of the time period but Hosseini’s novels address the real changes in political power and its impact on characters’ lives. *A Thousand Splendid Suns* tells the story of two women, Mariam and Laila, with deeply moving themes of family, friendship, faith and salvation to be found in love.

The postmodern era of degradation and fragmentation delimits to the future and present. The linear development of time from present to future is intentionally deviating from the past cultures and the historicity. “Social amnesia”, Susannah Radstone and Bill Schwarz termed this disconnection from the historical discontinuity by highlighting the role of memory or rather, its absences in the postmodern scenario. It is in this disorientating state that Khaled Hosseini is revisiting the past using the features of memory and nostalgia in his works. The selected works for the study is relevant as Afghanistan is still suffocating between

the social aristocrats and the peace of the country. Afghanistan was once a peaceful and developing country and the city of Kabul was an emerging center of cosmopolitanism. In an interview, Hosseini had said that, Afghanistan portrayed in the medias as the breeding ground for terrorism or Taliban, the opium trade, the cycles of war, there is so much more to Afghanistan. It is a beautiful country with beautiful, humble, kind, welcoming, hospitable and charming people and once you’ve been in touch with those people, it becomes personal. Hosseini is thus trying to bring up the stories of the people in Afghan and the memories he had about Afghan in his exile.

In both novels, Hosseini uses place as a tool to connect the past with the present and this evokes memories. The characters in the selected works are remembering the traumatic experiences they had with the association of the place and then they move to deeper details of their happy days as well as the heart piercing memories. The character Amir, in *The Kite Runner*, feels exhausted and the remembrance of the trauma makes him more disturbed. Laila, in *A Thousand Splendid Suns*, feels sympathetic towards the person in her memories, Mariam.

*The Kite Runner* is a multi-layered novel which narrates the stories of many generations and stands as a kaleidoscope to cultural, political, and religious aspects of Afghanistan from the year Zahir Shah began his forty-year reign, 1933, to 2002. The memories engraved Amir’s mind, which haunts him even after the long 26 years, the “unstoned sins” are the primary source used by Hosseini to dwell into the past. The use of memory from the very beginning of the novel itself points to Hosseini’s deep affection of his childhood days and his thirst to be in his homeland as he used to be. In

the foreword of the book, written as part of the tenth anniversary edition, Hosseini writes, “A few lines from *The Kite Runner* came to me, as Amir’s thoughts suddenly became my own: *The kinship I felt suddenly for the old land... it surprised me... I thought I had forgotten about this land. But I hadn’t... Maybe Afghanistan hadn’t forgotten me either.*”

Returning to homeland stands as a redemption for the “unstoned sins” Amir had done to his childhood friend and half-brother Hassan. The wild transformation from a prosperous country to a wretched place due to the gruesome effects of war shatters Amir. Even though he is exiled from his country, his marriage with an Afghan woman and close association with many more Afghan people and Community come as temporary solace. The conversation with Rahim Khan, an old friend of Amir’s father takes him back to the beautiful as well as the traumatic past he had. Hassan’s promise to Amir is the very first thing that repeatedly haunts him, “*For you a thousand times over, Amir Jaan.*” The memories of Hassan made Amir feel like a living body in hell as he is reminded of his sin and betrayal.

The longing for homeland is a part of memory invasion in our mind. The sweetness of home and bitterness of life in an alien place, considering it as the new home, is being traumatized by Amir and his Baba, who are dislocated from the roots. Amir’s description of the memories of homeland is poignant:

Baba was like the widower who remarries but can’t let go of his dead wife. He missed the sugar cane fields of Jalalabad and the garden of Paghman. He missed people milling in and out of his house, missed walking down the bustling aisles of Shor Bazaar and greeting people

who knew him and his father, knew his grandfather, people who shared ancestors with, whose pasts intertwined with his.” (Hosseini 129)

In *A Thousand Splendid Suns*, the lives of Laila and Mariam are intertwined from the moment when Laila accepts the marriage proposal of Rasheed. The narrative of the story alternates between Mariam’s and Laila’s stories. The novel begins with the setting of Herat and then to the city of Kabul. The land that brings the memories of Mariam in Laila is Herat, where Mariam’s soul and presence could be experienced. The visit to Herat takes Laila to the past days and it acts as paying a respect to Mariam’s love and sacrifice.

In Pakistan, it was difficult sometimes to remember the details of Mariam’s face. There were times when, like a word on the tip of her tongue, Mariam’s face eluded her. But now, here in this place, it is easy to summon Mariam behind the lids of her eyes, the soft radiance of her gaze, the long chin, the coarsened skin of her neck, her tight-lipped smile.” (Hosseini 402)

For Laila, Kabul is her hometown but her traumatic days after the death of her parents were unbearable and it is not Kabul which takes her to the memories with Mariam, it is Herat, Mariam’s hometown. Mariam had lived most part of her life in Kabul but still Herat is the only place where Mariam was attached to. The soulful memories play a key role in this novel which results in the development of character.

Hosseini not only uses memory as a tool to remind the past, he uses memory for serious criticisms. The portrayal of Afghanistan is a key criticism raised by him. The past and present brings forth a clean image of how the Taliban rule and continuous war had affected the country. Hosseini uses the street images of Afghanistan, the pathetic condition of

buildings and the lives of people who lived there to portray that Afghanistan is not a country of terrorism; it is a country of sufferings and the citizens of the country is experiencing serious traumas. The facts that the world sees through the media is not the exact life in Afghanistan and severe criticisms, that the media hesitate to show are seen in his novels. The passion towards the homeland is what forces Hosseini to lift the veils covered by the media in his stories.

### Significance of the Study

This paper analyzes how memory is used in Khaled Hosseini's novels *The Kite Runner* and *A Thousand Splendid Suns* as a critical tool. Afghanistan is still under the clouds of Taliban and under the threats. It is facing the world's worst humanitarian crisis. The political unrest described in both novels are still an issue. The criticizing technique of a man in exile is a way of protesting against the existing social condition. This paper tries to bring out the essence of Hosseini's style of using memory to criticize the present by drawing a connection with the past in his works. Hosseini is brave enough to bring the real face of the rulers of Afghanistan when the media hesitate to show.

### CONCLUSION

Memories manifest life experiences. The memories in the selected works manifest life experiences as well as act as a critical tool to show how past and present is distancing from the peaceful and developing state of Afghanistan. Many writers used memory to portray the traumatic experiences, the nostalgic emotions, etc. But Hosseini uses all

the features of memories to show the world the brutalities happening in Afghanistan these days. The exile from our land results in the recollection of the past and it approaches the present. The diasporic features and traumatic elements in the novels are perfectly portrayed in the characters.

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## LIES THAT TELL THE TRUTH: AN EXPLORATION OF TRANSGENDER IDENTITY IN THE REALM OF MAGICAL REALISM

Fathima Thebshi K.<sup>1</sup> and Reshmi S<sup>2</sup>

<sup>1</sup>Grace Valley Islamic and Arts College, Chengottoor, Malappuram, Kerala, India.

<sup>2</sup>Department of English, MES Asmabi College, Kodungallur, Thrissur, Kerala  
[thebshi786@gmail.com](mailto:thebshi786@gmail.com), [resritsan@gmail.com](mailto:resritsan@gmail.com)

### ABSTRACT

The fairy tales of mesmerizing mermaids and sleeping beauties with magical powers had always been a marvelous topic of discussion. The tales of men wedged up in women's bodies and women wedged up in men's bodies hardly surface in metafictional narratives. Kai Cheng Thom's debut work *Fierce Femmes and Notorious Liars* draws our attention to the society's burning topic- gender identity and the consequences of being a transgender in a prejudiced society. The author brings out the varied facets of transgendered existence by universalizing trauma, relationship issues, bonds, and traverses beyond ordinary magical realistic fictions. The paper examines the effectiveness and profundity created when transgender creativity becomes a powerful device of magical realism as a tool to express the inner self of the protagonists in the text, using the premises of Queer Theory. The voice for the thousands of voiceless people and those neglected for decades is indeed a deprivation of the era and the need of the hour.

**Key Words:** Magical realism, Transgenderism, Gender Identity, Stereotyping, Trauma, Social restrictions.

### INTRODUCTION

In recent times, gender and its multiple dimensions had been finding a niche in the mainstream society. As gloom or glow, all social platforms, medias, and even religious gatherings are actively addressing the subject with in their own perspectives. Still society shuns the emerging gender minorities, their rainbow culture and customs. Although literature had been incorporating this subject matter to its realm, genuine ones are countable. Transgender literature written by non-trans people are failing to portray the inner conflicts of these innocent lives with all its ups and downs. Here comes the relevance of texts written by third gender people. *Fierce Femmes and Notorious Liars*; *A Dangerous Trans Girl's Confabulous Memoir* opens a magical world of extraordinary beings, who found a world of themselves exhibiting real identity and thereby offering a world of security.

From the day Franz Roh introduced the term Magical Realism to till date, this unique technique had been in the favourite list of the writers who seek a meaning beyond the mundane topics. Literary giants like Salman Rushdie, Gabriel Garzia Marquez, Haruki Murakami, Franz Kafka, Toni Morrison, Alejo



Carpentier had always found a novel dimension for their crafts with the touch of magical realism. In her

debut work which tells the unusual yet ordinary story of a trans girl, Kai Cheng Thom is also trying to bring out this master craft with the help of magical realism.

### Objectives of the Study

- The study primarily analyses the depth of subject matter created when transgender experiences are intertwined with the threads of magical realism. It further explores,
- A general analysis of the life of a transgender in the contemporary world.
- An evaluation of the struggles and challenges the protagonist faces being transgender as expressed in the text through the aspects of LGBTQ theory.
- An analysis of the effectiveness and profundity created when magical realism is used as a strong technique to explore the inner stigmas of the characters.
- An exploration to the uncanny and mystical roads through which a transgender must walk through when he or she disregards the social constrictions of gender normativity.

### REVIEW OF LITERATURE

The concept of entangling the fascinating world of magic with the mundane paved way for the emergence of the complex technique of magical realism. Franz Roh contributed a unique style of writing in the post-colonial era and his essay 'Magic Realism: Post Expressionism'

drew a strict frame work for magical realism; the writing that transcends beyond the texts. The Latin American revolutionary writer, Gabriel Garzia Marquez popularized the technique, weaving it along with the threads of Latin American history, thus creating the masterpieces like *Love in the Time of Cholera* and *One Hundred Years of Solitude*.

Expressionism is a modernist movement, initially in poetry and painting, originated in Germany at the beginning of 20th century, in which artist seeks to depict not objective reality but rather the subjective emotions and responses that objects and events arouse within a person. The artist accomplishes this aim through distortion, exaggeration, primitivism and fantasy and through the vivid, jarring, violent, or dynamic application of formal elements (Lotha and Augusty 2019). Post-expressionism is also a German coined term by Franz Roh which is influenced by Expressionism, but defined them through rejecting its aesthetic. Roh first used the term in an essay in 1925, *Magic Realism: Post-Expressionism*, to contrast to Gustav Friedrich Hartlaub's "New Objectivity", which more narrowly characterized these developments within German art.

Even though Roh saw "post-expressionism" and "magic realism" as synonymous, later critics characterized distinctions between magic realism and Post-Expressionism. In fact, while referring to magical realism, it is essential to examine the relationship between realism and magical realism. In literature, the concept of realism was first propounded by Greek philosopher Aristotle through his concept of mimesis. Witnessing art is an essential way to learn about the universal truths of life. Realism developed mainly as a



literary trait of the novels in the late eighteenth and early nineteenth century. The novels existed as they attempted to represent life realistically in order to engage the interest and sympathy of the readers. It was expected that the novel would show rather than tell the reader an objective interpretation of reality. This was classical realism. However, this traditional concept of realism experienced a setback when in the twentieth century many critical theorists such as Henry James emphasized the involvement of imagination in literature to paint a realistic picture of life. David Grant in this connection remarked, “Here realism is achieved not by imitation, but by creation; a creation which, working with the raw materials of life, absolves these by the intercession of the imagination from mere factuality and translates them to a higher order” (quoted in *Magical Realism; Historical and Conceptual Origin* 3). This form of realism makes the narrative of a novel intricate, because the realistic elements do not reside in the kind of life it presents, but in the way it presents. This approach to literary realism is most crucial to the development of magical realism as a novelistic discourse. Despite its differences from the historical romance, the magical realist novel exemplifies the same cultural logic that structures and undergirds the historical romances of Walter Scott. However, the historical romance is not the sole source of magical realist fiction. It has many different generic progenitors and descendants like archaic literary and oral narrative traditions, pre modern socio-religious institutions, practices and beliefs etc. From the medieval king Arthur’s *Tales* to Jonathan Swift’s *Gulliver’s Travels* or Nathaniel Hawthorne’s *Rappaccini’s Daughter* to Franz Kafka’s *The*

*Metamorphosis*, magical realism has been used for centuries. These narrative traditions are brought by the practitioners of this literary genre into contact with the European realistic novel. Zamora and Faris W.B. note, “The widespread appeal of magical realist fiction today responds not only to its innovative energy but also to its impulse to reestablish contact with traditions temporarily eclipsed by the mimetic constraints of nineteenth and twentieth-century realism” (*Magical Realism* 4-5).

### **Problem Definition**

Can lies tell the truth? This question will startle everyone at least in the first glance. The truth is that there are some lies that tell the truth and it points to the magical realistic fictions. Franz Roh admired magical realism as an intuitive representation of the exterior world. He has viewed post-Expressionism as a marvel, miracle and magic of unending duration.

### **METHODOLOGY**

Magical realism may be perceived as a break from rationalism and realism which transcends the ordinary. William Spindler’s *Magic realism* suggests that there are three kinds of magic realism, which however are by no means incompatible, “European “metaphysical” magic realism, with its sense of estrangement and the uncanny, exemplified by Kafka’s fiction; “ontological” magical realism, characterized by “matter-of-factness” in relating “inexplicable” events; and “anthropological” magical realism, where a Native world view is set side by side with the Western rational worldview (79-83). Thom’s debut work, *Fierce Femmes and Notorious Liars* is a mysterious, mesmerizing

piece of literature, which tells the story of a haunted young girl (who happens to be a Kung-fu expert and pathological liar) runs away from an oppressive city, where the sky is always grey, in search of love and sisterhood- and finds herself in a magical place known only as the Street of Miracles. There, she is quickly adopted into a vigilant gang of glamorous warrior femmes called Lipstick Lacerators, whose mission is to scour the Street of violent men and avenge murdered transwomen everywhere. But when disaster strikes, the protagonist is struggling to find the truth within her in order to protect her new family and heal her broken heart.

### Textual Analysis

To talk about something beyond the prejudices of society, it is better to befriend something magical, especially, in a society where morality rules over humanism. Kai Cheng Thom in her memoir thus uses the technique of magical realism to tell the story of transgenders -the multi-fold marginalized community of people. Right from the submission of the book “For my family, blood and chosen, And for fierce femmes, fighters, haunted girls, and liars everywhere” (Cheng 7), Kai Cheng Thom proposes the purpose of writing this book. It is specially meant for haunted girls all over the world. She searches for stories about trans girls like her, but fails to find one. But she is able to find those stories which portray the soapy love, about a prince charming or princess who is so cute, fell in love. Instead of that kind of stories, she wants is,

The kind of story that does not wait for you to invite it to enter, but bursts through the doors of your rat-infested house like a glittering wind, hungry, hungry, to snatch up the carpet and scatter your papers and smash every single plate

in the kitchen. That surges, howling, up the battered stairs to blast the stained sheets off your filthy bed and sweep your secrets out of the closet and send them shrieking outside, overjoyed to be finally set free. Where are those kinds of stories about trans girls like you and me? (Cheng 9).

In this text Kai Cheng Thom narrates such a story which strikes the reader from top to bottom, which enters in to the depth of his or her soul as a spinning tornado, as she wants to make this text different from the traditional mode of storytelling. It is vividly clear from its structure itself, which breaks in to poems and letters in between mind-blowing narrations, which makes it more suitable and attractive as a magical realistic text. The distinguishing feature of magical realism is the fusion of something that is entirely different, but when they are fused sticks as close as lock and key, which cannot be parted, as Maggie Ann Bowers defines in her book *Magic(al) Realism*, “Its distinguishing feature from literary realism is that it fuses the two opposing aspects of the oxymoron (the magical and the realist) together to form one new perspective. Because it breaks down the distinction between the usually opposing terms of the magical and the realist, magical realism is often considered to be a disruptive narrative mode” (Ann 16). That means magical realism fuses two opposing perspectives and forms a new perspective. The protagonist in the memoir says:

It’s not wrong to hope, my mother always said. It is never wrong to hope. Hope made my parents fearful that I might get sick and die or be kidnapped at any moment. Hope made them wary of television or toys or friendship or anything else that might distract me from getting

good grades and going to university. Hope kept me trapped in the belly of the crooked house, in a tiny bedroom, surrounded by books instead of people (Cheng 16).

Hope is perceived as a positive current but it is the same hope that traps her inside the house being devoid from all social connections. Here 'hope' becomes the symbol of her suppressed emotions in her mind. And the two hopes commingle to the fact or to the creation of new perspective, that is she is a transgender, which is in fact, an oxymoron identity, a female residing in a male body. The protagonist's self-addressing as a girl and the claim that "Their greatest hopes rested on me, because I was a boy" (Cheng 16) will confuse the readers for a while. So, it becomes true that the protagonist in the memoir is one among those who stepped out from the boundaries that society assigned for gender. The problem arouses here. A person who neglects societal rules and regulations is always neglected and marginalized. "Picking locks is a glorious thing. To be able to open sealed doors is the greatest and most important kind of magic, because it allows you to interact with the world on your own terms" (Cheng 17), these lines emphasize the fact that she is already aware about her identity, but unable to reveal it because, she is locked in between the familial relationships. So, she is forced to run away from their home and friends, because she fears that her mother and father may not be able to accept the fact that she is a transgender. She says, "I have always felt uncomfortable as a boy, and you know Mom and Dad are never going to be into it" (Cheng 21).

The survival of a transgender girl is very difficult to withstand in our contemporary

society for they are teased and mocked by people who themselves introduce as cultured, civilized, and educated. In order to become detached from these circumstances, our protagonist escapes in to a place called The City of Smoke and Lights, although it is a highly dangerous plays where anything can happen. "In the City of Smoke and Light you can be everything you dreamed of" (Cheng 29) is the introduction the protagonist of the memoir gives to that place. Kai Cheng Thom uses the technique of magical realism tactically to describe the aspects that she has narrated from her own life experiences. In a chapter in the memoir titled 'The Lesson of Bees,' she says:

On a cold winter evening, my mother opened the door... A swarm of killer bees raced past her... Into the house they swirled, a boiling cloud of rage and desire, searching for the sweetest, softest thing they could find. I lay, six years old, in my bed in my tiny room... They landed on me, covered me with their vibrating bodies, crawled inside my lips and up my nostrils, into every orifice, and they drank up all the nectar they could hold. They lifted themselves up on their wings and flew off into the night. Except. Some of them stayed. Addicted to my sweet blood, they crawled up inside my body and built their nests there. They are still inside me. They will always be (Cheng 25-26).

If we make a re-reading of this incident, it will gradually reveal something beyond its literary meaning. Here, bees coming and attacking humans are normal that means it can happen. But some of them stays back inside the body and builds their nests there, is totally a meta-fictional narrative, which is a characteristic of magical realistic fictions. The attack of bees,

when we analyze from the angle of a memoir, it appears as an implication of any abuse that she had to face in her childhood days. And their building of nests may be an implication of the everlasting trauma that incident remained in her whole life. Because when we go through the memoir, there are many instances with a reference to the killer bees inside her body.

In the chapter titled 'Ghost Friend or The Only Person Who Can Make Me Come' the protagonist introduces a fantastical character whom she calls as 'Ghost Friend.' The ghost friend, who accompanies the protagonist is actually a reflection of herself, which comforts and supports in situations needed. But Kai Cheng introduces it as a separate character as if she wants her readers to understand how much important is a hand to hold on, a shoulder to cry on in adverse situations in our lives, a close friend to discuss with, which a transgender lack in most part of her life. The image of a ghost she used, reinforces the idea that it is a reflection of the protagonist's mind, because our minds cannot have a physical body, it is spiritual. It also underlines the quality of a magical realistic fiction, that is, "in the world of magical realism the supernatural realm blends with the natural, familiar world" (Zlotchew 15), as the entry of this character is in a tea shop near cemetery, which sounds realistic and mystic, both at the same time.

As the story itself is settled in a magical city and village, everything related to it have a magical touch. But there are some instances where magic step back and real emotions and feelings enter. For example, when the protagonist moves in to a house of her own, a little after she reached in to 'The City of Smoke and Lights', her friends there Kimaya and Rapunzelle pays

her a visit and gifts a beautiful small orange tree, which she likes a lot. It made her cry, despite her hard, not easy-going character. She says "Why are you being so nice to me, you and Kimaya?" I ask when I can finally talk again. "No one's this nice, not in real life" (Cheng 52). Here 'real life' has a reference to her life in her village called 'Gloom', where she is prohibited from making relationships with others. Even her mother and father do not pay much attention to her as their child; instead, they treated her as an object who will give them fortune in future. And no one recognized her real style of being there. But, in a magical place, two people who have no relationship with her before treats her as their own sister and it made her cry.

The sight of other femmes in the Street of Miracles, a strong urge to become a girl in all aspects started to pick her. And she seeks the help of a crocodile doctor, where the consultation fees cannot be paid in cash. His fee is that, every transgender girl who comes to him seeking help should go through an experiment that he selects. In short, they must exchange themselves for the medical help he provides. Here the Dr, Crocodile is a fictional character Kai Cheng created to reveal the sexual and mental harassing that a transgender girl must face in her real life. Gwen Benaway, who is of Anishinaabe and Metis descent and a transgender poet, says about this character in her review about the book, "The fairytale rendering of this interaction presents Dr. Crocodile as a literal crocodile, with the other patients in his office presented as various animals as well. As a trans woman reader, I take this scene to reflect the medical violence and exploitation which is visited on trans bodies as we negotiate health care" (Benaway 2016).



The 'vigilant girl gang' which the protagonist and the 'Goddess of war Valeria' creates to investigate the murder of Soraya-a femme among them- is the most attractive, the most magical, and strange thing that Kai Cheng creates in the book. They are notorious as 'Lipstick Lacerators' in the city. They haunt each cis-men who misbehave to a trans-femme in the street of miracles. But this gang activism goes beyond their control and in an encounter with the police; a cop accidentally gets killed by our protagonist. It happened near the valley where the statue of the First Femme is situated and she helps them to cover the dead body of the cop, using the creepers in her valley. The statue of a legendary woman helps them to cover-up their crime, which cannot be happened in real life for sure. This incident is a light-shower towards the real lives of trans girls who are always haunted and how much they crave for a hand to help them. But in real life there is no magical land in which everything can happen if we dream it, no First Femme to protect, no Goddess of war to lead, no God mother to comfort. There is only an individual to take care of herself.

The relaxation from the haunting night mares prompts the protagonist to bake a cake of forgiveness. For her the process of baking the cake seemed like creating a new world devoid from all aggressiveness that she had. She says,

Time and the solar system collapse to the size of a postage-stamp kitchen. The single fluorescent light bulb hanging from the ceiling is the furious burning sun. The cramped vinyl countertop is the vast expanse of space. Beneath my wet, sticky hands are the dust and liquid that come together to form the primordial ooze, the raw goop from which life is made. I am 'She,' the

wretched Goddess with sweat-soaked hair, stirring the universe with a wooden spoon. I crack an egg on the rim of a bowl: an atom splits and releases its blast. I whisk the ingredients and a planet is born (Cheng 166-177).

She portrays herself as a wretched Goddess who creates a new world to become a new person. She has to forgive herself for all the wrong deeds she did, or her situations forced her to do. In this part, Kai Cheng Thom is explicitly using magical realism as a fundamental technique to manifest the feelings of protagonist and this process of baking a cake of forgiveness helps her to get rid of the trauma that haunted for years. She says, "In the kitchen, I opened my eyes and cough once, twice, three times. A swarm of killer bees rushes out of my mouth and flies out the window. Sunlight pours through and warms my face. Distantly, I hear the phone ring. As though sleep-walking, I pick it up. The boy from the University library is calling, asking for me. The statue of the First Femme smiles" (Cheng 170).

The 'killer bees,' which stands as a symbol of trauma from the very beginning of the text, now escaped through her mouth, as soon as she tasted a piece of the 'cake of forgiveness.' She got devastated from the haunting memories of her past. And this incident reduced her hatred towards men and leads her to develop a relationship with a blue-eyed university boy called 'Josh,' who interviewed her earlier. The protagonist's relationship with Josh is also a representation of struggling everyday life of a transgender. She is in a tip-toe situation, because she cannot give up on ghost friend and on the other side, she wants to make a relationship with Josh. But she is uncertain. That shows she is afraid of the men approaching a

trans girl, which is a mere portrayal of a real-life trans-girl, who struggles to manage her relationship and the fear that she has in her mind. But she manages to make a good relationship with him finally, which provides her all earthly pleasures she craved for a long.

### Scope of the Study

For an individual who breaks the 'so called' gender norms of the society, to continue their life with ease and peace will be a distant day dream. Being a transgender is regarded as committing a crime in our society which judges each people with their gender identity. Transgenderism is still a novel concept for our people and to make them aware about the diverse concepts of gender, magical realism can contribute in a great scale as it is half magical and half real. Magic always had a way through the minds of its spectators and to elaborate on the magical existence of our fellow beings this complex yet enchanting technique is inevitable.

### CONCLUSION

In short, *Fierce Femmes and Notorious Liars* is an amazing magical realistic thriller fiction, which speaks for each transgender individual in the world. It gives a new outlook for this continuously marginalized community, who has no voice of their own. The fiction incorporates different themes through which a person must go through in his life; violence, danger, love, betrayal, hatred, struggling for a better life, encompassed with magical elements in a fantastic way. The memoir is a magical, fairy-tale type of story; on the other hand, it reflects a dangerous face of world that waiting a head of every transgender in real life.

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## THE EFFECT OF *AZADIRACHTA INDICA* IN BIO-ERADICATION OF SNAILS IN AQUARIUMS

Keerthana Jyothi<sup>1\*</sup> and Dhanya Pulikkottil Rajan<sup>2</sup>

1 – School of Industrial Fisheries, Cochin University of Science and Technology, Ernakulam – 682016

2 - Department of Aquaculture, M.E.S Asmabi College, P. Vemballur, Thrissur – 680671

\*corresponding author – keerthanaj92@gmail.com, +91 9745344588

### ABSTRACT

The effect of different concentrations of neem extract (*Azadirachta indica*) in bio- eradication of aquarium snails and its effect on the ornamental fish (*Poecilia reticulata*) were analysed in this study. Snail attack in aquarium tank is an issue with excessive reproduction, disfiguring the aquarium by attaching their young ones on plant surfaces and eating live plants. In this experiment 12 numbers of 3.5mm, 5L glass aquarium tanks of 22.5cm×22.5cm×15cm dimension were taken. Each tank was distributed with one pair fish and one snail (*Planorbarius spp.*). Tanks were kept as 4 sets, each set having 3 tanks (triplicates). First set of tanks ( $S_0$ ), were kept as control and different concentrations of neem were applied into the other 3 sets, namely,  $S_1$ ,  $S_2$  and  $S_3$ . The concentration of neem extract applied in  $S_1$ ,  $S_2$  and  $S_3$  were 5ml v/v, 10ml v/v and 30 ml v/v, respectively. Water quality parameters and snail behaviour were recorded for fifteen days. Temperature remained constant at all concentrations, while pH showed slight and gradual fluctuation which had no detrimental effect on organisms. But at high concentration of extract, light penetration was reduced and effected animal behaviour. There was significant difference in survival rate of the snails

and fishes in  $S_0$  compared to those in  $S_1$  to  $S_3$ . Ornamental fishes in  $S_1$  thrived well but, showed reduction in snail whereas,  $S_3$  recorded adverse effect on pet fishes too. The study showed that low concentrations of extract had lethal effect on the snails without causing adverse effect on fishes. Thus in aquariums, neem leaf extract at low concentration can be used as a bio-eradicator against aquarium snails without affecting the aquarium fishes.

**Key words:** *Azadirachta indica*, Snails, *Poecilia reticulata*, Aquarium, Bio-eradication

### INTRODUCTION

Freshwater snails are considered to be undesired pests in an aquarium. Some of the reasons why hobbyists consider freshwater snails to be pests are related to egg laying, excessive reproduction and eating live plants. Snails usually get into the system along with the vegetation. Damage done to tank plants disfigures the beauty of the set aquariums. Snail overpopulation can lead to lack of oxygen, since the majority of snails breed rather intensively.

There are different ways to get rid of snails including manual hand picking, chemical treatment and by

setting traps. Molluscicide, niclosamide, is acceptable for operational use in snail control programmes. According to Mitchell (2002), application of copper sulfate is an effective treatment to control snails. But, there has been increasing concern about chemical usage and its related toxicity issues. Uncontrolled use of chemical irritants/preservatives has been inducing factor for appearance of pest/microbial strains more and more resistant to classic chemical agents. This perspective has put pressure on the industry for progressive removal of chemicals and adoption of natural alternatives. This resulted in increasing search for new bio-eradicants.

The increasing amount of studies on plant-pest chemical interactions in the last few decades

has unveiled the potential of utilising botanical pesticides in the form of secondary plant

metabolites as pest control agents (Senthil-Nathan et al., 2007). *Azadirachta indica* (Neem) of family Meliaceae is a native of India which has emerged as the most important alternative source for plant based pesticides. It is largely relied on for herbal medicine in its ingrained countries and is used for pharmaceutical and pest control purposes (Berger, 2005). One of the most promising natural compounds in neem is azadirachtin, a tetranotriterpenoid which is known to possess antiviral, antibacterial and antifungal properties since time immemorial (Isman et al., 1990; Harikrishnan et al., 2003; ICAR, 1993). This compound in neem have insecticidal properties as an antifeedant, repellent, oviposition deterrent, molting inhibition and a growth retardant for a variety of insects and arthropods (Mala et al, 2008 ; Lale et al ,1999 ;Seljäsena et al, 2005 ; Rimpi et al ,2010).

Aqueous extract of neem leaves and other allied products find extensive use in fish-farms for controlling fish parasites and fish fry predators (Martinez, 2002). Most of these plants appear to work as aquatic molluscicides affecting surface tension at the gills of aquatic snails and leading to toxic haemolytic effects. Considering all the above, neem, is a good candidate as bio-eradicant in the agricultural and fisheries sector. In this paper, the effectiveness of neem in eradicating pest snails in an aquarium is studied. The survival of ornamental fishes at the experimental doses is also recorded.

## MATERIAL AND METHODS

### Test Animals

The experiment were performed using Ramshorn snails (*Planorbis spp.*) of average 4mm diameter, collected from affected aquarium tanks. Guppy (*Poecilia reticulata*) were acquired through local fish suppliers. Fishes were randomly chosen generating heterogeneity of sizes with an average length of 3cm. The fishes were acclimatized for about two weeks in indoor tanks filled with tap water. During this period the water was constantly aerated with conventional aerators and fishes were fed daily with commercial food pellets (2-3 powdered 1mm pellets per fish). Once acclimation was achieved, healthy fishes were distributed in 12 aquarium tanks in male-female ratio of 1:1.

### Experimental Set Up

12 numbers of 3.5mm, 5L glass aquarium tanks of 22.5cm×22.5cm×15cm dimension were taken for the experiment. 4L of tap water was filled in all the tanks with constant aeration using aeration tubes and stones. Each tank was distributed with one pair fish and one snail. They were fed daily with commercial food pellets (4-5 grounded pellets per

tank). Tanks were kept as 4 sets, each set having 3 tanks (triplicates).

#### **Preparation of Neem Leaf Extract** (Caguan et al., 2004)

Fresh leaves of neem plant (*Azadirachta indica*; Family: Meliaceae) were collected locally and cleansed with dechlorinated tap water to remove dust. 45gm of neem leaves were taken. Water was added to it in the ratio of 3:1 and then finely grounded in blender. The resulting solution was filtered to obtain an aqueous extract. Fresh aqueous extract was used directly after 12-13 hrs at the desired concentrations.

#### **Application of Neem Leaf Extract**

The experiment was planned to be done for three different concentration of aqueous neem extract and one set of control. For this purpose, four sets of aquaria were arranged (set  $S_1$ ,  $S_2$ ,  $S_3$  and  $S_0$  for 5 ml, 10 ml, 30 ml and control, respectively), each set containing three aquaria (triplicates).

### **RESULTS**

#### **Effect of Neem Extract on Water Quality**

Temperature is one of the important parameters often used in water quality assessment. Drastic changes in temperature values will cause harmful effects to distribution of aquatic organisms. The change of temperature value of the aquaria before and after using neem leaf extract is given in Table 1. Significant variation in temperature was not observed during the experimental period. The active ingredient neem did not show any negative impact on the temperature of the treated water.

pH is another important parameters used in water quality assessment. Low or high pH values will cause harmful effects to distribution of aquatic organisms (Martinez, 2002). The change of pH

value of the aquaria after using neem leaf extract is shown in Table 2. There was only slight and gradual change in the pH which was not detrimental to the survival of aquatic organisms.

Water colour affect the luminous intensity of the sun on the water hence, has an impact on the photosynthesis (Martinez, 2002). As shown in the Table 3, application of low concentrations didn't affect the light penetration, hence the survival of fishes and snails was not affected (Set  $S_1$ ). But tanks treated with high concentration ( $S_2$  and  $S_3$ ) showed reduction in the light penetration. The tanks subjected to higher concentration of neem also had detrimental effect on the survival of aquatic organisms as observed in set  $S_3$ .

#### **Effect of neem leaf extract on Snail and Fish**

Set  $S_0$  test tanks had the general aquarium set up. The set of tanks from  $S_1$  to  $S_3$  were treated with neem extracts. The neem extract treatment in  $S_1$  was 5 ml/tank. After the treatment all test fishes was alive for the 15 days of the experimental period whereas, the snails survived only the first 4 days of treatment. The reduction in snail was recorded on the 5<sup>th</sup>, 10<sup>th</sup> and 13<sup>th</sup> day. This indicates that at 5ml, neem leaf extract had a slow negative impact on snail survival rate, while there is no adverse effect on fishes. The experiment was continued to estimate the point at which the given concentration affected the ornamental fishes. The fishes survived upto 15<sup>th</sup> day at the given condition which was 3 times that of snail survival days.

Set  $S_2$  tanks had the general aquarium set up. The neem extract treatment in this set was 10 ml/tank. After the treatment all the test fishes were alive for the 15 days of the experimental period whereas, the snails survived only for the first two days. The reduction in snail was recorded on the 3<sup>rd</sup>, 6<sup>th</sup> and

10<sup>th</sup> day. This indicates that increase in concentration of neem extract shows a proportionate decrease in snail survival rate. It had much better and quick effect on snails, while there was no visible effect on fishes in the 15 day period.

The neem extract treatment in S<sub>3</sub> tanks was with 30 ml neem extract. After the treatment all the test fishes and snails was alive for only one day. Mass mortality of all the test fishes and snails was observed by the 2<sup>nd</sup> day. This indicates that at 30 ml, neem leaf extract is highly detrimental for both fishes and snails.

From the above results it was evident that there was significant difference in survival of the snails and fishes in different concentrations of neem leaf extract treatments. 5 ml and 10 ml concentrations had detrimental effect (even though slow) on the snails without causing adverse effect on fishes. While 30 ml concentration proved to be highly toxic to both test fishes and snails.

**Table no 1.** Effect of Neem Extract on Temperature(°C)

Sl.no	Neem Extract used (ml)	Days														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S <sub>1</sub>	5	30	30	30	30	30	30	30	30	30	30	30	30	D	D	D
S <sub>2</sub>	10	30	30	30	30	30	30	30	30	30	D	D	D	D	D	D
S <sub>3</sub>	30	30	30	D	D	D	D	D	D	D	D	D	D	D	D	D

Values are the mean±SD, n=3

D – Snail died, No further analysis

**Table no 2.** Effect of Neem Extract on pH

Sl. no	Neem Extract used (ml)	Days														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S <sub>1</sub>	5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	7	7	D	D	D
		2	2	5	5	5	5		8	8	8					
S <sub>2</sub>	10	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	D	D	D	D	D	D
		6	6	7	7	7	7	8	9	9						
S <sub>3</sub>	30	6.3	6.3	D	D	D	D	D	D	D	D	D	D	D	D	D
		4	4													

Values are the mean±SD, n=3

D – Snail died, No further analysis

**Table no 3.** Effect of Neem Extract on Colour

Sl. no	Neem Extract used (ml)	Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S <sub>1</sub>	5	LG	LG	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL	D	D	D
S <sub>2</sub>	10	G	G	G	G	LG	LG	LG	CL	CL	D	D	D	D	D	D	D
S <sub>3</sub>	30	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
		G	G														

Values are the mean±SD, n=3      D – Snail died, No further analysis, LG – Light Green , G –Green , DG – Dark Green , CL – Colourless

## DISCUSSION

This study was done to reduce the undesired growth of aquarium pest, Ramshorn snails (*Planorbarius spp*), using different concentration of neem leaf extract. Ploomi et al.(2009) have tested *Azadirachtin* on herbivorous snail and concluded that the treatment could control the snail as effective repellent. In a study conducted by Venkatalakshmi & Michael (2001), neem leaves prevented the spread of infection and promoted the survival and growth of fish.

The result obtained in this study showed that Neem leaf extract in low concentrations didn't affect the survival of fishes in the aquarium. Neem leaf is used for leprosy, eye disorders, intestinal worms treatment, have anti-bacterial, antiviral properties (Sumana et al, 2015) hence, they directly or indirectly enhance the health of fishes. Nguyen et al. (2016) reported that the use of active ingredients extracted from neem is capable of affecting the quality of the water. At low concentration, the extract from neem leaf did not have observable negative impact on ornamental fishes (*Poecilia reticulata*).

## CONCLUSION

The result of the present study indicates that the water quality parameters like temperature, pH and colour didn't change drastically by the application of low concentration (5 ml, 10ml/tank) of the neem extract. This result indicated that low concentration of neem leaf extract applied to fresh water was not harmful to the species in the aquaria. Whereas, at the highest test concentration used (30 ml/tank), adverse effects were evident with mortality of both snails and fishes within two days of treatment. This study proves that the application of low concentration neem leaf extract can be used as a molluscicide in water as environment friendly material instead of deleterious molluscicides.

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