

## LEGAL AND ETHICAL ISSUES OF COMMERCIAL SURROGACY IN INDIAN SCENARIO

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**Abstract:** *the nature has bestowed the beautiful capacity of procreation of life within women. Every women across the globe enjoys the period of motherhood, however due to certain reasoning s many women across the globe lack the capacity of bringing life into the world. Though the initiative of adoption acts as an alternative it is not welcomed in most parts of the society including the Indian society. In this holder commercial surrogacy acts as a better alternative. However India being a conservative society, the idea of commercial surrogacy is subjected various forms of criticism as there is an involvement of a second mother and has eventually become an burning issue in the glare of limelight . Though there has been a number of discussion and debate conducted pertaining to the issue. A general ambiguity exists with respect to the legal and ethical aspects of commercial surrogacy. Hence This research with the sampling method, mainly aims to find out the undue factors that has a negative impact on commercial surrogacy in India. The study tries to analyse the legal implications of surrogacy in India. This paper by the virtue of empirical study tries to understand ethical issues of surrogacy in India. . Finally an attempt is made to give effective recommendations for legalizing surrogacy in India. With the help of quantitative method and analytic method it can be found out that the concept of commercial surrogacy in India involves does not involve severe legal an ethical issues and challenges. It is recommended that 1.There is a need to pass a new legislation by which*

*commercial surrogacy related matters will be governed. Moreover, sufficient steps are necessary to take so that people can at least understand the positive sign.*

**Key words:** *women, surrogacy, legal, ethical, India*

### **Introduction**

The calling to have children among the couples is universally common. The concept of right to have children and the right to reproduce is often seen as a perfect right guaranteed within the constitution of the country. Several authors have explained the idea of parenthood as eternal and a everlasting experience. The Indian society has constantly worked for family growth and having children. However many couples in India find it incapable to have children of their own. The WHPO report states that over 15% of the Indian couples suffer due to the problem of infertility (Rammer & Friedrich, 1998). For decades adoption acted as a solution for the infertile couples, however in several occasions it is deemed as a failure as it involves several legal and ethical implications. After the bloom of artificial human reproductive technologies in India, a new solution for childless couples was offered. The artificial human reproductive techniques include artificial fertilisation, in vitro fertilisation, in vivo fertilisation and one of such notable development in artificial human reproductive techniques is surrogacy. The word surrogacy has been derived from the Latin term 'surrogates' meaning substitute (Bromfield, 2016). Surrogacy means as to establishment of (Trishala A, Lakshmi T and Rajeshkumar S, 2018) agreement between a woman and a infertile couple whereby the woman agrees to carry the child of the couple or agrees to get inseminated with the semen of other women's husband. Surrogacy has developed in medical advancement as a new technique to solve the problem of childlessness by which a woman carries the child of other women in her womb. Surrogacy is of two types namely commercial surrogacy and altruistic surrogacy. Altruistic surrogacy is where a woman agrees to give birth to a child for a childless couple without receiving any form of compensation. Whereas commercial surrogacy is where a woman agrees to carry and deliver the child of infertile couple by receiving compensation.

Many activists have commented that 'giving birth to children is not commerce' the general presumption that is put forth is that children are born as a result and a product of love and affection between couples and is far away from Commercial activity. As a result of which it is subjected to various forms of criticism by various organisations. The recent proposals by the government in the preview of commercial surrogacy are subjected to active review and criticism.

Though The surrogacy regulation bill 2016, abolishes the practice of commercial surrogacy in India and imposes several other restrictions on surrogacy practices, it fails to address the legal and ethical challenges involved. This research aims to identify the legal and ethical issues of commercial surrogacy in Indian scenario and analyse the psychology of the public on commercial surrogacy.

### **Objectives of the study**

1. To study the application of concept of commercial surrogacy in India.
2. To analyse the legal issues of commercial surrogacy in India.
3. To understand the ethical issues of commercial surrogacy in India.
4. To give effective recommendations for effective implementation of commercial surrogacy in India.

### **Research Methodology and Materials**

#### **Study area**

A. As the researcher intends to take an overview on **account of commercial surrogacy**, the study is divided into three categories –

1. Historic period – From Vedic Period to 6th Century.
2. Medieval period – From 6th Century to 18th Century.
3. Modern Period – From 18th Century to till now
4. Judicial interpretation

B. As the study aims to analyse the **legal issues of commercial surrogacy in India**, the study includes-

1. legislations
2. The role of judiciary
3. Interview from Advocates

**Methods of study**

1. Analytical Method
2. Qualitative method
3. Comparative method
4. Descriptive method

**Type of research**

1. Applied Research
2. Quantitative Research
3. Explorative Research
4. Comparative research
5. Descriptive research

**Data collection**

Present study is based on Primary as well as Secondary sources of data, which are as –

1. Primary Sources – Primary data is collected by collecting questionnaire from Advocates, Ngos working for the protection of women involved in commercial surrogacy, questionnaire from post graduate law students and visit to women study centers.
2. Secondary Sources – Secondary data is collected through religious literature of Ancient and Medieval India, Sanskrit Literature, Foreign travellers accounts, folk literature, N.G.O. reports, Government Reports, Websites, Research Articles, Newspapers, Reports on women studies.

**Sample size calculation**

<b>Population</b>	<b>Targeted population</b>	<b>Sample size</b>
<b>Advocates</b>	Medico constitutional law specialization	100

<b>PG Law students</b>	PG students of medico constitutional law	50
<b>Doctors</b>	Gynecologist working in the field of artificial inseminations	50
<b>NGO's</b>	Working for women	50

### **Tables and Calculation**

In this study for each issue a survey is done where a sample size mentioned above is taken and the percentage is also mentioned, to determine each variable there are several parameters established. The frequency depicts the number of respondents who have answered “yes” to the question asked in the survey.

### **Limitations**

Lack of access to the victims

### **Hypothesis**

**H<sub>01</sub>: the concept of commercial surrogacy in India does not involve severe legal and ethical issues and challenges**

**H<sub>11</sub>: the concept of commercial surrogacy in India does not involve severe legal and ethical issues and challenges**

### **Review of Literature**

1. (Majumdar, 2018) tries to explain the adverse effects of banning commercial surrogacy in India. The author mainly focuses to identify the reasons for banning commercial surrogacy in India. The study helps in understanding the exploitation of women in the practice of surrogacy.

2. (Pande, n.d.)(2012) explains the need for legislation to regulate the practice of artificial reproductive techniques in India and the purpose of this report is to record and highlight the implications of commercial surrogacy in India. It focus to find out the practical application of constitution in commercial surrogacy.
3. (Singh, 2014) the study analyses various case laws and judicial interpretations with respect to commercial surrogacy in India. The paper reveals that surrogacy involves negative implications on both parents.
4. **Hariharan,(1988)** elucidates various interviews and case studies with surrogate mothers and the doctors performing such surrogacy practices. This study helps us understand the harm and injury the a women develops as a result of commercial surrogacy practices.

### **Concept analysis**

#### **Commercial surrogacy and its evolution in India**

The concept of commercial surrogacy is not a new practice in India. The application of this practice could be found in ancient and historic times. The Hindu mythology shows instances of surrogacy in the society. In Bhagwat Purana it is told that lord Vishnu heard the prayers of Vasudev for preventing Kansa not to kill her new born sons(Penner, 1966). Lord Vishnu after hearing the prayers of Vasudev transferred the embryo from Deviki's womb to Rohini's womb. In mahabarat, Ghandhari did not give birth to any of her children instead a semi solid substance was divided by Vyas Maharishi into 10 pieces and planted them in different containers. Trithankar, Mahavira, the key (Dr.Lakshmi T and Rajeshkumar S , 2018. )figures of the Jain Mythology was conceived and had been exchanged starting with one ladies' womb then onto the next one's.. Devananda, spouse of a Brahmin named Rishabdeva imagined him. The divine beings, shrewdly, exchanged the fetus to the womb of Trishala. India's first IVF baby, Kanupriya, nom de plume Durga, was conceived 67 days after the fact on October 3, 1978, through the endeavors of Dr. Subhas Mukherjee and his two associates in Kolkata. The birth of baby Kanupriya (otherwise called Durga), through the novel method was set apart by gigantic debate. As of late the condition of surrogacy in India is that it is a boon to infertile couples and has been a torrent of blended data and perplexity. From one perspective, a lot of VIPs in India are having babies through surrogacy(Vaishnavi, 2015). By and by, India does not have any

enforceable laws set up with regards to the surrogacy procedure. Surrogacy was made legitimate in India in 2002, and with the law came rules from the India Council of Medical Research. Though the general presumption with respect to commercial surrogacy is as to the boon to infertile couples, there is additionally no law to guarantee appointing guardians have lawful rights to a youngster; a surrogate mother can keep the infant she brings forth and be well inside her rights And there is no law that guarantees an infant conceived by means of surrogacy has a nationality. But the concept of commercial surrogacy has faced various challenges which include the case of Baby Manji Vs. Union of India and Balaz Vs. India.

sn o	Response	Advocates		Medical experts	
		frequency	percentage	Frequency	percentage
1	Immoral practice	26	26%	5	10%
2	Service to humanity	20	20%	Nil	nil
3	Boon to infertile couple	54	54%	45	90%
<b>Total</b>		100	100%	50	100%

**Ethical Issues of Commercial Surrogacy in India**

The basic thought behind surrogacy is honorable one as it depends on the benevolent rule of doing great to others i.e. one lady helping another lady. A portion of the moral issues identifying with surrogacy are as per the following:

1. **Physical Harm:** Most Indian women go about as surrogate mothers because of destitution or other financial need. This raises the essential issue of obligation for the mischief caused or endured by a surrogate mother. In the event that there is no medical carelessness with respect to the specialists and other medical staff, it is hard to settle the risk and along these lines repay the misfortune endured by the surrogate mother. There is always a risk of physical harm.
2. **Children's interest:** Surrogacy by and large includes installment of cash to the surrogate mother for conveying and giving over the child to the dispatching guardians. Hence, it is censured as proportionate to purchasing and offering a child. It is contended that it would prompt determination of sex and attributes in a baby. Along these lines, surrogacy would bring about regarding a youngster as an item which is considered as ethically wrong and unscrupulous. It is additionally watched that the procedure of surrogacy including in vitro preparation as a rule brings about birth of triplets or quadruplets. This may hurt the enthusiasm of the kid, as the charging guardians may not be in a situation to take care of such number of children conceived against their desire. Further, it is contended that surrogate children might be conceived with absconds. Another hostile issue in the process is the assurance of parentage and care of youngster. Surrogacy includes investment of three or four or five grown-ups.
3. **Women dignity:** Ideal to respect is one of the inalienable and loved privileges of each individual. It is contended that surrogacy corrupts the intrinsic respect of a lady. Surrogacy includes the utilization of a lady's body for creating an infant which is given over to the appointing guardians. Amid the term of pregnancy, the surrogate mother needs to maintain the conditions set down in the agreement and has no privilege to take any choice influencing her body. In addition the surrogate mother additionally thinks about pregnancy as a methods for procuring cash and tries to abstain from building up a unique bond with the youngster in her womb. In this way the normal mother-kid bond is either missing or stifled and the whole procedure is seen as a business exchange. The commentators contend that the lady's body is decreased to being a hatchery or reproducer machines and consequently it debases the poise of lady



4. **Surrogacy connected with prostitution:** some creators have censured that surrogacy resembles prostitution, as it includes offering of the conceptive limit of a lady and the utilization of her body as an end-result of installment of cash. Promote it is contended that like a whore who must choose between limited options and control before a client who has solicited her support and paid cash; the surrogate mother likewise must choose between limited options and needs to maintain every one of the terms and conditions set forward by the appointing guardians. In the two cases one's physical administrations is being offered, in the two cases material pay is offered for the physical administrations gave.

sn o	Response	Advocates		Ngos	
		frequency	percentage	Frequency	percentage
1	Physical harm	26	26%	11	22%
2	Interest of children	18	18%	09	18%
3	Women dignity	44	44%	20	40%
4	Connection with prostitution	12	12%	10	20%
<b>Total</b>		100	100%	50	100%

### **Legal Issues of Commercial Surrogacy in India**

It could be understood that commercial surrogacy includes violation of various rights that are guaranteed by the constitution which include:

1. **Equality:** the prime most important right of equality is violated because of commercial surrogacy because the surrogate mother is not given equal opportunity to raise the surrogate child. Right to reproduce is a basic essential human right. Customarily, surrogacy is considered as the last choice accessible for securing a kid by wedded barren couples. However utilization of surrogate turn into a combative issue because of the utilization of surrogacy by different people additionally like separated, widowed, single, same sex couples, matured, debilitated who are intrigued to have a kid. Increment utilization of innovation by these individuals to sire a child would greatly affect the social structure, which means of family, foundation of marriage and it will influence the social standards, ethics and morals in the general public. Further, the utilization of surrogacy by matured and debilitated people will raise the issues of support and welfare of the child. Accordingly it is important to decide the criteria with respect to the utilization of surrogacy by people other than wedded barren couples.
2. **Exploitation:** in most cases the surrogate mother is exploited by various means which include sexual abuse, illegal sale of ovum, sex trade, nonpayment of compensation and many more. Poor people, ignorant ladies of lower strata are frequently convinced in such arrangements by their life partner or go betweens or the outside expected couples for procuring pain free income. Because of absence of familiarity with their rights they are regularly consulted to enter in a surrogacy contract on a less expensive arrangement. These ladies have no privilege without anyone else body and life. Surrogacy appears like an alluring option as a poor surrogate mother gets especially required cash, a barren couple gets there since quite a while ago wanted organically related infant and the nation gains remote money, however the genuine picture uncovers the severe truth. Because of absence of legitimate enactment, both surrogate moms and here and there proposed guardians likewise are some way or another misused and the benefit is earned by go betweens and business organizations.

3. **Right to life:** The connection of the surrogated mother with the baby is that she is conveying is only womb renting or womb for lease. After the introduction of the tyke she has no privilege to keep the kid since she is neither the mother (where both ova and sperm are from various people) nor the proprietor of the hereditary material. She is just a contractual worker who will give the final result once the agreement amongst her and the individual is satisfied.
  
4. **Citizenship:** it could be identified that the concept of commercial surrogacy is backed with medical tourism. Many foreigners come to India for the purpose of having a child through surrogacy, in that the issue that arises is that whether the child delivered by a Indian belonging to a foreign parent is eligible for Indian citizenship?
  
5. **Validity of contracts:** The law relating to surrogacy is vague and uncertain. Different countries have different laws with respect to validity and enforceability of surrogacy contracts. Some of the countries consider these contracts as illegal while some others have their own laws for their regulation. In India, it is generally criticized that surrogacy contracts are opposed to public policy because they involve the use of womb by a woman for begetting a child to be handed over to the other party on payment of money, which is like renting of womb and selling of child. It is to be noted that a contract opposed to public policy is void contract according to the Indian Contract Act, 1872. Thus the legality of surrogacy contracts is uncertain.

**International Scenario**

Country	Legal status
Hong Kong	Under the Human Reproduction ordinance surrogacy was declared <b>Illegal</b>
Ice land	Commercial Surrogacy is <b>Banned</b>
Ireland	Both altruistic and commercial surrogacy is <b>Unlawful</b>

Israel	There are no surrogacy laws so practice of surrogacy is <b>permitted</b>
Japan	Commercial surrogacy was banned in Japan by the <b>Science Council of Human Reproduction in 2008</b>

**Discussions**

The idea of commercial surrogacy is definitely not another training in India. The utilization of this training could be found in old and memorable circumstances. Despite the fact that the general assumption regarding commercial surrogacy is with regards to the aid to barren couples, there is also no law to ensure naming gatekeepers have legal rights to an adolescent; a surrogate mother can keep the baby she delivers and be well inside her rights And there is no law that ensures a newborn child brought about by methods for surrogacy has a nationality. Most Indian ladies go about as surrogate moms due to desperation or other money related need. This raises the fundamental issue of commitment for the insidiousness caused or continued by a surrogate mother. Surrogacy overall incorporates portion of money to the surrogate mother for passing on and giving over the child to the dispatching gatekeepers. Thus, it is blamed as proportionate to acquiring and offering a child. the prime most vital right of balance is disregarded due to commercial surrogacy in light of the fact that the surrogate mother isn't given equivalent chance to bring up the surrogate child. Appropriate to replicate is a fundamental thing human right.

This study is influenced by the psychology of individuals because Neutrals, which appear to have the high ground, feel surrogacy is a questionable subject and furthermore recognizes that the current circumstance, in which laws are non-existent or ineffectively upheld, is negative and is also influenced by demographic factors

The concept of commercial surrogacy in the international scenario is banned in most of the countries. Under the Human Reproduction ordinance surrogacy was declared Illegal in Hong Kong. Commercial Surrogacy is banned in Ice land and Commercial surrogacy was banned in Japan by the Science Council of Human Reproduction in 2008.

After cautious examination of aftereffect of this exploration and in the wake of concentrate the lacunae in the ICMR Guidelines, 2005, the ART (Regulation) Bill, 2008, Law Commission of India 228th Report, ART (Regulation) Bill, 2010 and ART (Regulation) Bill, 2013, recommendations are made Life exists in light of energy of reproduction. Without this power, surrogacy is preeminent rescuer which ought to be directed and controlled by law. Since there is nonattendance of law on the indispensable issue of surrogacy, henceforth surrogacy ought to be directed and controlled by another enactment. Surrogacy ought to be managed by law while commercialization of surrogacy ought to be restricted.

### **Findings**

1. Surrogacy is perceived as boon to infertile couple.
2. Most Indian women go about as surrogate mothers because of destitution or other financial need.
3. There raises the essential issue of obligation for the mischief caused or endured by a surrogate mother.
4. in most cases the surrogate mother is exploited by various means which include sexual abuse, illegal sale of ovum, sex trade, nonpayment of compensation and many more
5. the concept of commercial surrogacy in India involves does not involve severe legal an ethical issues and challenges

### **Recommendations**

1. Establishment of a statutory body for management of commercial surrogacy
2. There is a need to pass a new legislation by which commercial surrogacy related matters will be governed. Moreover, sufficient steps are necessary to take so that people can at least understand the positive sign.
3. The law should provide for the right to termination of pregnancy for the surrogate mother in case of any mental or physical trauma that she may experience during the pregnancy
4. Minimum time up to which the surrogate mother should be allowed to nurse the child should be laid down as without such a provision the child's health may suffer.
5. Exploitation of women and physical harm to women through surrogacy should be included in the Indian Penal Code,1860

### **Conclusion**

Toward the finish of this discourse, one might say that the right and privilege to reproduce is a major and a characteristic human right. Surrogacy is the best way to overcome both natural and social fruitlessness. It gives therapeutically infertile couples and also socially infertile people who are unwilling to get hitched with an opportunity to have their very own child. Obstructing each route for minority individuals to acquire the treatment they want would be dangerous in light of the fact that it could build sentiments of dissatisfaction, concealment, and irateness. As the matter of fact, legitimization of commercial surrogacy plans to secure the surrogate's advantages and in addition those of the expected parents and the infant conceived after the surrogacy.

### **References**

1. Penner, H. H. (1966). Cosmogony as Myth in the Vishnu Purāṇa. *History of Religions*, 5(2), 283–299.
2. Rammer, E., & Friedrich, F. (1998). The effectiveness of intrauterine insemination in couples with sterility due to male infertility with and without a woman's hormone factor. *Fertility and Sterility*, 69(1), 31–36.
3. Singh, H. D. (2014). "The World's Back Womb?": Commercial Surrogacy and Infertility Inequalities in India. *American Anthropologist*, 116(4), 824–828.
4. Vaishnavi, G. (2015). Chapter-13 Problems and Suggestions for Regulation of Surrogacy in India. In *Surrogacy: Medicolegal Issues* (pp. 153–162).
5. Hariharan. (1988). *Surrogate Motherhood : Ethical and Legal Issues*. [online] Available at: <http://bioethics.georgetown.edu/publications/scopenotes/sn6.pdf> [Accessed Date: 18th March, 2018]
6. *Baby Manji Yamada vs. Union of India and Another*. (2008) 13 SCC 518.
7. From L.P.A. No. 2151 of 2009, High Court of Gujarat
8. Anita Rao, *Surrogate Motherhood-Legal perspective as cited in Kelra, K., 2010. Surrogacy Arrangements: Legal and Social Issues. Journal of Law Teachers of India. Volume 1(Issue No.1-2), p.131.*

9. Hari, G.R., 2009. FEWBASICS FROM ICMR GUIDELINES. [online] Available at : <http://blog.indiansurrogacylaw.com/2009/01/few-basics-from-the-icmrguidelines> (Accessed Date: 28th October, 2011)
10. Acid Survivors Foundation India. (2013). Statistics. Retrieved 25th May 2015 from [http://www.asfi.in/webpage.php?title=Statistics+&p\\_type=1&parent=76&catid=78](http://www.asfi.in/webpage.php?title=Statistics+&p_type=1&parent=76&catid=78)
11. Agarwal, V. (2015, 5th February). India Hits Its U.D. Poverty-Cutting Target, but Misses others. The Wall Street Journal. Retrieved 4th April 2015 from <http://blogs.wsj.com/indiarealtime/2015/02/05/india-hits-its-u-n-poverty-cutting-target-but-misses-others/>.
12. Allchin, F. R. (2015, 1st April). India. Encyclopedia Britannica. Retrieved 4th April 2015 from: <http://www.britannica.com/EBchecked/topic/285248/India#toc46358>
13. Andrews, L. B. (1988). Surrogate Motherhood: The Challenge for Feminists. In Larry Gostin (Eds.), Surrogate Motherhood: Politics and Privacy (pp. 167-183). Bloomington: Indiana University Press.
14. ASSOCHAM India. (2013, 20th July). The India 2013 Tourism & Hospitality Event. Retrieved 25th January 2015 from <http://www.ambinde.fr/economic-andcommerce/events/in-india/event/219>
15. ASSOCHAM India. (2013, 13th September). Weak rupee in a bonanza for Medical tourists: ASSOCHAM. Retrieved 9th May 2014 from <http://www.assochem.org/prels/shownewsarchive.php?id=4171>
- 16.
17. Atkinson, R. and Flint, J. (2001). Accessing Hidden and Hard-to-reach Populations: Snowball Research Strategies. Social Research Update, 33. Retrieved 4th May from <http://sru.soc.surrey.ac.uk/SRU33.pdf>
18. Bagchi, S. (2008). Growth generates health care challenges in booming India. Canadian Medical Association Journal, 178(8): 981-984.
19. Bird, C. M. (2005). How I stopped Dreading and Learned to Love Transcription. Qualitative Inquiry, 11(2): 226-248.

20. Birks, M and Mills, J. (2015). *Grounded Theory: A Practical Guide* (2nd ed.). Los Angeles, London, New Delhi, Singapore, Washington: SAGA Publications Ltd.
21. Bloom, D. (2015, 5th March). Everyone must watch banned Delhi gang-rape film, says victims father – as Indian government vows to ‘take action’ against BBC for airing it. from <http://www.dailymail.co.uk/news/article2980630/Delhi-rape-victims-father-urges-viewing-documentary.html>
22. Blunt, E. A. H. (2010). *The Cast System of Northern India*. Delhi: Isha Books. (Original work published 1931).
23. Blyth, E. and Farrand, A. (2005). Reproductive tourism – a price worth paying for reproductive autonomy?. *Critical Social Policy*, 25: 91-114.
24. Bowen. G. A. (2010). From Qualitative Dissertation to Quality Articles: Seven Lessons Learned. *The Qualitative Report*, 15(4): 864-879.
25. Brady, C. J. (2007). Offshore Gambling: Medical Outsourcing Versus ERISA’s Fiduciary Duty Requirement. *Washington and Lee Law Review*, 64(3): 1073-1114.
26. Brahams, D. (1987). The Hasty British Ban on Commercial surrogacy. *Hastings Center Report*, 17(1): 16-19.
27. Brandel, A. (1995). Legislating Surrogacy: A Partial Answer to Feminist Criticism. *Maryland Law Review*, 54(2). Retrieved 29th April 2015 from <http://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=2945&context=ml>
28. British Museum. (e.d.). Indus Valley. Retrieved 5th April 2015 from [http://www.ancientindia.co.uk/indus/home\\_set.html](http://www.ancientindia.co.uk/indus/home_set.html)
29. Dr.Lakshmi T and Rajeshkumar S , March. 2018. “In Vitro Evaluation of Anticariogenic Activity of Acacia Catechu against Selected Microbes”, *International Research Journal of Multidisciplinary Science & Technology*, Volume No. 3 , Issue No. 3 , P.No 20-25.



30. Trishala A , Lakshmi T and Rajeshkumar S, April 2018.“ Physicochemical profile of Acacia catechu bark extract –An In vitro study”, International Research Journal of Multidisciplinary Science & Technology, Volume No. 3 , Issue No. 4, P.No 26-30.

