



A STUDY OF ROLE OF SHARERIKA AND MANSIKA DOSHA IN VYADHIK-SHAMATAVA

Kavita Kanyal¹, Vijay Shankar Pandey²

^[1]M.D. Scholar, Department of Ayurveda Samhita and Siddhanta, Government Ayurvedic College, Patna, India

^[2]Professor & H.O.D., Department of Ayurveda Samhita and Siddhanta, Government Ayurvedic College, Patna, India

Corresponding Author: kanyalkavita03@gmail.com

<https://doi.org/10.46607/iamj1711102023>

(Published Online: October 2023)

Open Access

© International Ayurvedic Medical Journal, India 2023

Article Received: 08/08/2023 - Peer Reviewed: 25/08/2023 - Accepted for Publication: 10/09/2023.



ABSTRACT

In both the universe and the body *Satva*, *Rajas*, and *Tamas* are considered to be the initial basic elements. These are mainly considered to be related to the *Mana* but due to being the basic elements through various processes the basic three *Dhatus* of the body *Vata*, *Pitta*, and *Kapha* have also been considered to have originated from them. At the time of the formation of the body of the fetus according to their condition, *Prakriti* is formed. At the same time through them, physical strength and *Vyadhikshamatava* are also generated in seed form. The ability generated at this time has been said to be innate, genetic, etc. which develops progressively through exposure to different opportunities. It is the concept that this innate *Prakriti*, strength remains from birth till death. According to the need, the strength and health potential known as acquired potential is generated judiciously by means of *Aushadh*, diet, *Vihar*, etc. In *Ayurveda*, the etiology and pathogenesis of any disease is based on the Theory of *Dosha*. The medium of origin or growth of acquired ability is also these *Vata*, *Pitta* & *Kapha*. *Aaharpak*, *Samagni*, physical activity, proper sewage removal, etc., can be understood as its complement. Thus, by maintaining the equilibrium of *Shareeika* and *Mansika Doshas* through a variety of methods or measurements, health, strength, and ability are developed.

Keywords: *Dosha*, *Prakriti*, *Triguna*, *Vyadhikshamatava*

INTRODUCTION

Ayurvedic Approach to Disease Manifestation begins with the theory of the evolution of the universe and the entire life forms prevailing in it¹. *Satva*, *Raja* and *Tama* are said to be the three qualities of *Prakriti*. There is a hypothesis that these three were the only ones before the beginning of creation. As long as these three *Gunas* remained in equilibrium there was a state of zero or rhythm in the universe. As a result of disparity in the basic elements or qualities of nature due to *Sisrikshu* etc. creation started². This shows the fact that in the equilibrium of these qualities, nothing remains except these qualities. When the equilibrium of these qualities is disturbed the new creation of the universe, or the origin of new elements starts. Passing through various processes of creation all the elements like *Mahat*, *Ahankaar*, *Indriya*, *Panch Mahaabhoot* etc. originated from these basic elements³. It is clear that no element of the universe is independent of these qualities. Our body and its basic *Vata*, *Pitta*, *Kaph*, *Dhatu*, etc. are also made of these. *Vata*, *Pitta*, and *Kapha* which are produced from these elements are called *Dhatu*⁴ because of being a body-building factor and due to vitiating the body and causing deformity are called *Doshas*. At the same time seeing the special relation of these basic qualities of *Prakriti* with the mind, they are also defined as *Mansika Guna*. The disease is said to be caused by an imbalance in *Doshas* and the subsequent influence on bodily components of *Dushyas* namely *Dhatu*s and *Malas*⁵.

- **SHAREERIKA DOSHA-**

Vata, *Pitta*, and *Kapha* are always present in a person's body either in an abnormal state or in *Prakrit* state i.e., normal form⁶. *Tridosha* offers a remarkably insightful and sophisticated perspective on the workings of the human body, providing a precise explanation of the physiological function and the intricate mechanisms governing each major organ system, along with their pivotal organs⁷.

1. **VATA-** It is rough, cold, light, and dry in nature, follows a transverse course, and is *Rajoguna* predominant⁸. *Vayu* is said to be the *Ayu*, the strength, the sustainer of the body of living things. When an

individual possesses an unimpeded state of *Vayu* with its rightful placement in the body and aligned with its inherent essence an extended lifespan exceeding a century devoid of any afflictions becomes attainable⁹. Functions of *Prakrit Vata* include Enthusiasm, inspiration, expiration, movements, normal processing of *Dhatu*s and normal elimination of excreta¹⁰.

2. **PITTA-** Slightly viscous, *Usna* (Hot), Acrid (Quick-Acting), Fluid, Acid (Sour), *Sar* (Astringent) and Bitter¹¹. *Prakrit Pitta* performs the natural functions of seeing, *Pakti* (digestion), *Ushma* (bodily heat), *Kshudha* (appetite), *Trishna* (thirst), the softness of the body, *Prabha*, *Prasad* (happiness of the mind), *Medha* (holding power), etc¹².

3. **KAPHA-** It is also known as *Shleshma* i.e., the substance that keeps two or more subtle and gross components together in the body¹³. Guru, cold, soft, sweet, stable and sticky are the qualities of *Shleshma*¹⁴. The function of *Sheshma* is to lubricate the interior of the joints (*Sandhi-Samshleshanam*), to contribute to the gloss of the body (*Snehanam*), to aid in the formation of healthy granules in sores (*Ropanam*), to add to the size of the body (*Puranam*), to build fresh tissues (*Brimhanam*), to impart a pleasant or soothing sensation to the body (*Tarpanam*), to increase its strength (*Balakrit*), and to give firmness to the limbs (*Sthairyakrit*), thereby contributing to the welfare of the body by supplying it with its watery element¹⁵. *Kapha* present in natural health is the strength and energy of the body¹⁶.

Each individual is born with a specific percentage of *Tridosha* which establishes his basic constitution known as *Prakriti*, which is determined at conception and remains constant throughout life¹⁷. *Ayurveda* explains the predisposition and susceptibility of human subjects with different *Prakriti* to various diseases¹⁸. *Ayurveda* also suggests different immune responses in individuals which is based on their *Prakriti*¹⁹. Interindividual variations to elicit innate or acquired immune response is well-documented and it is attributed to a number of factors including the proportion of immune cells in circulation²⁰. Variation in

the immune response is often attributed to and measured from the difference in cluster differentiation (CD) markers expressed in lymphocytes. According to a study by Gautam et al.²¹ and Somarathna et al.²² Ayurvedic herbal preparations have been demonstrated to improve immunological capability by increasing the expression profile of cluster differentiation (CD) markers. To which the following inferences have been made by Harish et al²³-

- Cd14 is preferentially expressed by monocytes, macrophages, granulocytes, B-cells, dendritic cells, and hepatocytes mediate the innate immune response to bacterial lipopolysaccharide. CD14 expression is greater in *Pitta*-dominated people than in *Kapha* and *Vata Prakriti*. In an in vivo mouse model, Ferrero et al. and Merlin et al. found that greater CD14 expression increased hypersensitivity.
- CD25 is a 55 kDa transmembrane polypeptide that is primarily expressed by activated B-cells, T-cells, and NK-cells. In humans, CD25 deficiency leads to recurring infections and lymphocyte infiltration in numerous organs. CD25 expression is greater in *Kapha Prakriti* individuals.
- CD 56, also known as neural cell adhesion molecule, is a member of a wide family of cell surface glycoproteins that are mostly produced by NK cells. When compared to *Vata*, *Kapha Prakriti* had a greater level of CD56 expression.

● **MANSIKA DOSHA-**

There are three types of *Satva (Mana)* - *Shuddha (Satva)*, *Rajas* and *Tamas*. In the triple *Satvas* the pure essence (*Satvaguna*) is non-destructive, so it is not called a *Dosha* or defect. *Rajas* and *Tamas Satva* vitiate the mind²⁴ and are the cause of disorders hence they are called *Manas Dosha*²⁵. The *Rajas Satva* is called *Sadosha* (faulty) because it has *Roshansh* (a component of anger). *Tamas Satva* is also said to be flawed because it contains *Mohansh*.

1. *Satva* qualities are *Samvibhag ruchita* especially a judicious regimen of diet, tolerating the dualities of happiness-sorrow etc., Truth, Religion,

Theism, Knowledge, Intelligence, *Medha*, Memory, Patience, *Anabhisang* i.e., selflessly doing good deeds.

2. Feeling of misery, Sorrowfulness, Wanderlust, Impatience, Arrogance, Untruth, Cruelty, Pretense, Pride, Pleasure-Seeking desire, and Anger are the attributes that mark the mind of the *Rajasika* cast.
3. Despondency, Regret, not following *Vedadi*, disbelief in the existence of God, not using intelligence, the perversity of intellect, lethargy in action and sleepiness are the qualities that mark a mind of a *Tamasika* stamp²⁶.

❖ **AIMS & OBJECTIVES-**

1. The study of *Ayurvedic* principles related to *Dosha* and *Vyadhikshamatava* described in the *Brihatrayi* and *Laghutrayi*.
2. Study of relation of *Dosha* and *Vyadhikshamatava*
3. Modern scientific research of connected areas like immunity and its components.

❖ **MATERIAL & METHODS-**

For the detailed study of *Dosha* and *Vyadhikshamatava*, a thorough literary study has been conducted using *Ayurveda Brihatrayi Samhitas*, reference books, various journals, and publications. In light of the instructions given by the CCIM/Government of India for preventing COVID panic this study was started in 2021 as a Dissertation.

DISCUSSION

According to *Ayurveda*, the intricate connection between the mind and body is manifested through the harmonious interplay of the *Trigunas* and their profound influence on the elemental composition of the *Pancha Bhutas*, which unite to produce the *Tridoshas*. *Vata Dosha* is predominantly *Rajasic*. *Pitta Dosha* is said to be more *Satvic* and *Kapha Dosha* is said to be more *Tamasic* in nature²⁷ as shown in table 1.

Table 1-

Dosha	Mahabhoota Predominance (According to Ashtang Sangrah)	Guna Predominance (According to Acharya Sharangdhar)
1. Vata	Vayu, Aakash	Raja
2. Pitta	Agni	Satva
3. Kapha	Jala, Prithvi	Tama

According to “*Vatapittasleshmana Eva Dehasambhavahetavah*”²⁸ the origin, sturdiness, growth, and development of the whole body are believed to be from *Vata Pitta Kapha*. Even though on the basis of *Guna* and functioning the *Vata*, *Pitta*, and *Kapha* seem to be opposite to each other and other elements of the body but basically in equilibrium they do not work as antagonists because they do the work of sustaining and enhancing the body²⁹. Each is responsible for a certain kind of biochemical and molecular function in any system. *Vata* is in charge of membrane function, *Pitta* of metabolic activities and other biochemical pathways, and *Kapha* of energy storage molecules in any system. *Vata*'s membrane transport governs homeostasis, or the ability of cells to regulate their environment. *Pitta* drives energy production by producing energy-rich molecules like ATP to fuel cellular metabolism. *Kapha* governs lubrication and hence structure³⁰.

Generally, the qualities and functions of *Vata* appear opposite to *Sara*, *Oja*, and *Bala* (these lead to *Vyadhikshamatava*) but in equilibrium *Vayu* makes all the functions of the body to be performed smoothly thus it helps in their origin. According to the qualities *Pitta* also often does not seem favourable to *Sara*, *Oja*, and *Bala*, but by paying attention to the functions it is clear that *Pitta* creates all the elements of the body by doing digestion work through *Jathragni*. Accordingly, it is clear that in its absence *Sara*, *Oja*, and *Bala* cannot be imagined. Digestive juices like *Pitta* in the form of *Jathragni* can be deadly for many microbes. Its contribution to the origin of healing power is also evident as *Vagbhatta* has described *Shaurya* i.e., strength in the form of *Pitta Karma* and *Oja* by *Sushruta*. *Kapha Guna Karma* is favourable in every way to *Oja* / ability. Thus, even though other elements can also be responsible for *Vyadhikshamatava*

the contribution of *Doshas* in the form/ state of *Dhatu* cannot be denied. Perfect health is considered to be the result of *Dosha* equality which is also indicative of *Aarogya* or health³¹. Equilibrium of these natural *Doshas* has been considered to be productive of auspicious work like metabolism, strength, color, etc. which clearly indicates the origin of *Kshamata*. *Sara*, *Oja*, and *Bala* can also be considered as the result of the equilibrium of *Doshas*.

The equilibrium of mental *Doshas* is that *Satva Guna* remains by suppressing *Raja* and *Tama*, and not that *Raja*, and *Tama* remain by suppressing *Satva*. The increase in *Satva* is mainly due to the increase in *Titiksha*, *Anabhishanga*, intellect, etc. *Dalhan* said *Titiksha* as *Kshama* or forgiveness and *Vedant Saar* as *Sheetoshnaadi dwand shahishnuta* i.e., Capability to withstand extremities of hot, cold etc. Hence from *Titiksha* the physical capacity for cold, heat, rain, hard work, exercise, etc., and the mental capacity of endurance of anger, insult, grief, fear, etc. is to be understood. Therefore, by the increase of *Buddhi*(intelligence), *Medha*, and memory which results in the proper observance of *Sadvritta*, *Swasthavritta*, and *Nidra-Varjan*, etc., the *Aarogyakshamta* increases accordingly. By increasing intelligence, memory, etc., the disease-fighting ability that has been generated by the combination of harmful substances, its memory will also remain for a long time. Therefore, with the increase in intelligence, etc., the disease-fighting ability increases. In the *Gita*, *Satva* has also been considered as *Anamaya* i.e., a disease-free state. This is possible only when the body and mind have disease-resistant power or ability. It is also considered to be a link to happiness (health is the greatest happiness) so it clearly provides immunity. *Rajas* by being the cause of suffering, arrogance, pride, joy, work, anger, and *Tama* (darkness) decreases the disease-fighting potential and leads to the origin of the

disease. Also due to the association of *Raag* (attachment) and *Trishna* (craving) *Raja* especially increases the *Asatmyendriyarth Sanyog*, resulting in loss of capacity/ability and causing disease independently. Similarly, *Tama* increase leads to inhibition of intelligence, ignorance, inactivity, sleepiness, and depression, as a result of which health capacity declines and diseases arise. Because of ignorance, attachment, delusion, and laziness, *Tama* is particularly debilitating and disruptive. Its toxic quality destroys all mental and physical qualities, produces depression, destroys stamina, and produces many diseases.

Studies have shown that approximately 95% of diseases are not inherited. This indicates that the choices we make in our daily lives have a direct impact on our susceptibility to diseases and their manifestation³². For the health of the senses and mind and to keep them free of vices, employing the objects of the senses with the aid of the intellect and properly comprehending the advantages and harms, one stays healthy and joyful by appropriately delivering the activities and rejecting the harmful actions. By rendering this type of work a man can counteract the unintended disease caused by *Asatmyendriyarth Sanyoga* and *Pragyapraadh* (ignorance). For counteraction to the disease that has arisen it is necessary to follow the deeds contrary to the country, time, and self-qualities (propensity disorders)³³. By following the *Sadvritta* both the objectives -health, and control of senses are achieved simultaneously³⁴.

CONCLUSION

Tridosha proportions impact multisystemic phenotypic features, including each person's vulnerability to extrinsic and intrinsic variables resulting in disease susceptibility. Thus, the knowledge of *Vatadi Doshas* is also required for disease and *Vyadhikshamatava* knowledge. Along with this if there is no knowledge of *Manas Doshas Raja* and *Tama* and man does not try to limit them or does not try to increase *Satva* then a man leads a miserable life by suffering from many diseases caused by *Asatmyendriyarth Sanyog* and *Pragyapraadh* and is unable to perform any *Puru-shartha* namely-*Dharma* (righteousness, moral val-

ues), *Artha* (prosperity, economic values), *Kama* (pleasure, love, psychological values) and *Moksha* (liberation). Without the knowledge of this principle, man cannot consciously perform the prescribed *Karmas* and renounce the prohibited *Karmas* leading a miserable life suffering from various physical and mental ailments. Such men being deranged from their duties get self-destructive by becoming confused and out of ignorance sometimes they blame *Kaal*, sometimes they blame their previous deeds and sometimes consider God as the reason for their sorrows. It is clear from the above quotations that one should always strive for the increase of *Suddha* or *Satva Guna* and the decrease of *Raja*, and *Tama* for the sake of welfare.

REFERENCES

1. Shriti Singh, Sangeeta Gehlot1 and N. K. Agrawal, Basis of Disease Manifestation: A Molecular and Ayurvedic Approach with an Integrated Concept of Ayurgenomics, Journal of Natural Remedies, DOI:10.18311/jnr/2019/23331
2. Dr Lakshamidhara Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch sha 4/8
3. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch sha 1/66
4. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch vi 6/5
5. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch vi 6/7
6. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 18/48
7. Shilpa S1, C. G. Venkatesha Murthy2 Understanding personality from Ayurvedic perspective for psychological assessment: A case www.ayujournal.org.
8. Dr. Ambikadatta Shastri, Sushruta Samhita - Ayurveda Tatva Sandipika - Hindi Vyakhya, by Kaviraj

- Chaukhambha Sanskrit Sansthan, Varanasi, edition 2017, Su ni1/7
9. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch chi 28/3-4
 10. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 18/49
 11. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 1/60
 12. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 18/50
 13. Dr. Ambikadatta Shastri, Sushruta Samhita - Ayurveda Tatva Sandipika - Hindi Vyakhya, by Kaviraj Chaukhambha Sanskrit Sansthan, Varanasi, edition 2017, Su su 21
 14. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 1/61
 15. Dr. Ambikadatta Shastri, Sushruta Samhita - Ayurveda Tatva Sandipika - Hindi Vyakhya, by Kaviraj Chaukhambha Sanskrit Sansthan, Varanasi, edition 2017, Su 15/6
 16. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 17/117
 17. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch vi.8/95- 100
 18. Harish Rotti, Immunophenotyping of normal individuals classified on the basis of human dosha prakriti, Journal of Ayurveda and Integrative Medicine · March 2014
 19. Priyavrat S, editor. Charaka Samhita, Vim. 8/96-98. Varanasi: Chaukhambha Orientalia; 2010.
 20. Shriti Singh, Sangeeta Gehlot1 and N. K. Agrawal, Basis of Disease Manifestation: A Molecular and Ayurvedic Approach with an Integrated Concept of Ayurgenomics, Journal of Natural Remedies, DOI:10.18311/jnr/2019/23331
 21. Gautam M, Diwanay SS, Gairola S, Shinde YS, Jadhav SS, Patwardhan BK. Immune response modulation to DPT vaccine by aqueous extract of Withania somnifera in experimental system. Int Immunopharmacol 2004; 4:841-9
 22. Somarathna KI, Chandola HM, Ravishankar B, Pandya KN, Attanayake AM. A short-term intervention trial on HIV positive patients using a Sri Lankan classical rasayana drug-Ranahamsa Rasayanaya. Ayu 2010; 31:197-204.
 23. Harish Rotti, Immunophenotyping of normal individuals classified on the basis of human dosha prakriti, Journal of Ayurveda and Integrative Medicine · March 2014
 24. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch sha 4/34
 25. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch sha 4/36
 26. Dr. Ambikadatta Shastri, Sushruta Samhita - Ayurveda Tatva Sandipika - Hindi Vyakhya, by Kaviraj Chaukhambha Sanskrit Sansthan, Varanasi, edition 2017, Su sha 1/17
 27. Sharngdhara. Sarngadhara Samhita. Edited by Parashuram Shastri Vidyasagar. Varanasi: Chaukhambhasurbhartiprakashan; edition 2013.Sha.Sa.Pratham Khand 5
 28. Dr. Ambikadatta Shastri, Sushruta Samhita - Ayurveda Tatva Sandipika - Hindi Vyakhya, by Kaviraj Chaukhambha Sanskrit Sansthan, Varanasi, edition 2017, Su su 21/3
 29. Dr. Harishchandra Singh Kushwaha, THE AṢṬAN-GAHRDAYAM, Sarvangasundara's and Ayurvedarasayana's Kusumprabha Hindi-commentary first Part, Chaukhambha Orientalia , edition 2018 Sutra Sthana 1/6 Arundatta
 30. Alex Hankey, Establishing the Scientific Validity of Tridosha Part 1: Doshas, Subdoshas and Dosha Prakriti ancient Science of Life, Vol. 29, No.3 (2010) Pages 6-18
 31. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvaprasini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch sha 6/18
 32. Shriti Singh, Sangeeta Gehlot1 and N. K. Agrawal, Basis of Disease Manifestation: A Molecular and

Ayurvedic Approach with an Integrated Concept of Ayurgenomics, Journal of Natural Remedies, DOI:10.18311/jnr/2019/23331

33. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvapraaksini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 8/17

34. Dr Lakshmidhar Dwivedi, Dr B.K. Dwivedi, Charaka Samhita (Ayurvedadipika, Tattvapraaksini Teeka), Chaukhamba Krishnadas Academy, Varanasi, Edition 2019 Ch su 8/18

Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Kavita Kanyal & Vijay Shankar Pandey: A study of role of sharerika and mansika dosha in vyadhik-shamatava. International Ayurvedic Medical Journal {online} 2023 {cited October 2023} Available from: http://www.iamj.in/posts/images/upload/2497_2503.pdf