



CONCEPT OF MICRO MACRO MATABOLISM IN AYURVEDA: A REVIEW

Yogeshwari Ranawat¹, Rajesh Kumar Sharma², Dinesh Chandra Sharma³

Post graduate Scholar, Department of Kriya Sharir, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur, Rajasthan, India

Professor and H.O.D. Department of Kriya Sharir, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur, Rajasthan, India

Associate Professor, Department of Kriya Sharir, Dr. Sarvepalli Radhakrishnan Rajasthan Ayurved University, Jodhpur, Rajasthan, India

Corresponding Author: yogeshwariranawat7@gmail.com

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**ABSTRACT**

Agni is the invariable agent in the process of *Paka* (digestion, transformation). Ingested food is to be digested, absorbed, and assimilated, which is unavoidable for the maintenance of life, and is performed by the *Agni*. Different examples are available in our classics to indicate that *Pitta* is the same as *Agni*, but some doubt arises behind this concept, that *Pitta* is *Agni*. *Agni* is innumerable because of its presence in each and every *paramanu* of the body. But the enumeration of the number of *Agni* varies in various classical Ayurvedic texts. According to the functions and site of action, *Agni* has been divided into 13 types, i.e., one *Jatharagni*, five *Bhutagni*, and seven *Dhatvagni*. *Jatharagni* is the most important one, which digests four types of food and transforms them into *Rasa* and *Mala*. The five *Bhutagnis* act on the respective *Bhutika* portion of the food and thereby nourish the *Bhutas* in the body. The seven *Dhatvagni* act on the respective *dhatu*s and each *Dhatu* is broken into three parts. In this way, the entire process of transformation consists of two types of products – *Prasad* (essence) and *Kitta* (excrete). The former is taken for nourishment while the latter is thrown out, which otherwise defiles the body if it stays longer

Keywords: *Agni*, *Bhutagni*, *Dhatvagni*, *Jatharagni*, *Pitta*

INTRODUCTION

Type of Agni (As per different ayurvedic texts)

Charaka has described 13 *Agnis* (*Jatharagni* – 1, *Bhutagni* – 5, *Dhatvagni* – 7) According to **Sushruta**, five types of *Agnis* are identified, *Pachakagni* (concerned with digestion), *Ranjakagni* (concerned with the colouration of bile pigments), *Alochakagni* (concerned with vision), *Sadhakagni* (concerned with digestion) and *Bhrajakagni* (concerned with a brain),

Vagbhata has described different 18 types (*Bhutagnis* – 5, *Dhatvagnis* – 7, *Dhoshagni* – 3, and *Malagni* – 3), *Agnis* are also classified into four categories according to how they manifest in the human being. (According to *Bala Bhed* in *Charak Sahita*)¹ (*1Tikshnagni* *2Mandagni* *3Vishmagagni* *4Samagni* the broad types of Agni are: Macro-Fire or *Jataragni* and Micro-Fire or the *Sub-agnis*

1. Macro-Fire or *Jataragni*

slyly as does the slave - Emile Souvestre *Jatara* which means gut or belly (the digestion zone) and *Agni*. The Stomach is a slave that must accept everything that is given to it but avenges wrongs as a means of Fire. Thus, *Jataragni* means 'Fire in the belly which depicts the physiological components of digestion and metabolism which take place in the stomach and intestines. It is the fire that governs the preliminary process of digestion before the food is converted into a form in which it could be absorbed, assimilated, and utilized in various body functions in the form of nutrition and energy. It functions independently and helps in primary digestion. Thus, protecting and taking care of our Gut fire is mandatory for us to be healthy. "Happiness The quality and quantity of *Jataragni*, which is said to be the central government of all other *Agni* (micro-fires directing micro metabolic processes in the cells), determines all other forms of *Agni*. If this fire is raised or decreased, the metabolism is disrupted. This then results in the metabolism being altered if this fire is boosted or diminished. This then sparks a series of pathological occurrences that result in requires three things, a good bank account, a good cook, and good digestion Jean Jacques Rousseau "Men who pass

most comfortably through this world are those who possess good digestions and hard hearts - Harriet Martineau on the other hand, if *Jataragni* gets vitiated, it disturbs all the other *Agnis* in the body. numerous systemic diseases. The various types of *Agni* that *Jataragni* controls are in equilibrium if *Jataragni* is correct, balanced, and healthy. This results in the lowering of cellular immunity and formation of systemic ama (intermediate products of digestion, the food essence which cannot be utilized in the body as nutrition or energy due to its unprocessed nature). The cells cannot take up nutrition nor identify it. Rather, the cells identify nutrition as toxins and unwanted materials. The tissue building comes to a cease. The cells fail to flush toxins and waste products of digestion. These toxins due to their sticky nature get adhered in the cells and get stubborn, these are called *Dhatugata Ama* (cellular toxins). The cells get weak and lethargic. The sequence of weak *Jataragni* followed by weak *Dhatu-Agni* (cellular fire) and formation of systemic and cellular ama forms an ideal platform for many diseases to manifest Indigestion is charged by God with enforcing morality on the stomach - Victor Hugo

1. *Jatharagni/ Kosthagni paka* Present in the *pachak pitta*. It is responsible for the digestion and absorption of nutritious substances during this process. The process of digestion (*Ahar Pachan*) is divided into three stages, which collectively are called *Awastha Paka* and can be divided into the following.
2. *Amavstha (Madhuravastha) Paka* - in the stomach
3. *Pachymanavastha (Amlavstha) Paka* - in 'grahani' (Duodenum)
4. *Pakavstha (Katuavstha) Paka* - in small and large intestine.

As the rasa changes in a different phase of digestion, these phases of digestion are called *Avsthapaka*. At the end of the digestion, the digested food has its original rasa which is in accordance with the rasa of the ingested food. This is called *Nistha paka*. It is also called popularly *Vipaka*. Madhur rasa and *Lavan*

rasa have Madhura Vipaka, Amla rasa have amla vipaka and Katu, Tikta and Kashaya rasa have Katu vipaka.²

2. Micro-Fire or the Sub-agnis

Jataragni helps in the primary digestion of food and sets up the platform for the metabolism to take place at the cellular level. There are a few more types of Agni's which basically are dependent on *Jataragni*. These are present at tissue and cellular levels. They work under the control of *Jataragni*, and their status is directly proportional to how good or bad is *Jataragni* in terms of its quality and quantity.

(A) *Bhutagni*

They are the structural or anatomical fires related to *Pancha Mahabhutas* or the 5 basic elements of creation responsible for our physical being arch. The permutations and combinations of these 5 elements make up different tissues and organs in our system. Similarly, the imbalances of these 5 elements (one or more) can disturb the body dynamics leading to a wide array of health issues. Each *Bhuta* or element of nature making up our body composition is said to have a fire of its own. These fires take the essential parts of the nutrition and metabolize them so as to support selves. Thus, we have 5 *Bhutagnis*

They are -

- *Prithvi or Parthiva Agni* (fire within the Earth element).
- *Apya Agni* (fire within the Water element),
- *Tajjasa or Agneya Agni* (Fire within the Fire element)
- *Vayaveeya Agni* (Fire element within the Wind or Air element) and
- *Akasheeya/Naabhasa Agni* (Fire within the Space or Ether element).

भीम आप्य आधेय वायव्यास नामसाः। पच आहार गुणान् वान् खान् पार्थिवादीन् पचन्ति हि ॥ ³(च.चि 15/15)

Each *Bhutagni* helps in the digestion and assimilation of its own components from nutrient food into the tissues Eg: Bones are dominant with *Pruthvi*. *Pruthvi Agni* (*Parthivagni*) helps to absorb the *pruthvi* components of food into the *pruthvi* parts of the body. Functions of *Bhutagnis*: When in normal conditions, the *Bhutagnis* digest and micro-process the minute

fractions of food supplied to them after the action and digestion of *Jataragni* on all types of food that we consume. Each *Bhutagni* acts on the fractions of food that are concerned to them. The overall effect of the *Bhutagnis* on the food at the cellular/tissue level converts them into nutritive components which nourish the tissues, and channels of the body. Vayu, heat, and the body as a whole. The food thus digested properly, flow in the channels of the body uninterruptedly and nourish all the tissues apart from providing *Upachaya* (tissue building. *Bala* (Strength, endurance, immunity) *Varna* (Colour and complexion *Sukha* (Happiness. saturation, health), and *Ayush* (good and extended life span When Disturbed: When the *Bhutagnis* get vitiated (deficit or excess) the above said benefits are not obtained. The micro-processing of the food doesn't take place leading to depletion and subsequent contamination of the tissues with stagnant toxins. This forms an ideal environment for the disease process

(B) *Dhatvagni*

Dhatu means Tissue and *Agni* meaning Fire. *Dhatvagni*, thus, refers to the fire that is contained within the tissue. The nutrients they acquire are affected by this fire, and they are transformed into finer components. The components produced as a result of *Dhatvagni's* action on the food (in circulation) aid in the creation of the same tissue, nourish the following tissue in succession, provide energy, and make tissue waste products that are intended for excretion. *Dhatvagnis*, which stand for "normal operations occurring at the cellular level," are hence the functional or physiological fires associated with the seven Dhatus or tissues of the body.

यथास्वेनोष्मणा पाकं शरीरा यान्ति धातवः स्रोतसा च यथास्वेन धातुः पुष्यति धातु ⁴(च.चि 8/39)

सप्तभिर्देहधातारो, धातवो द्विविधं पुनः । यथास्वमग्निभिः पाकं यान्ति किंटूप्रसादयत् ⁵(च.चि 15/15)

Dhatvagnis are 7 in number

- *Rasa Dhatvagni* - (fire in the plasma tissue)
- *Rakta Dhatvagni* - (fire in the blood tissue)
- *Maas Dhatvagni* - (fire in the muscle or flesh tissue)
- *Meda Dhatvagni* - (fire in the fat or adipose tissue)

- *Asthi Dhatvagni* - (fire in the bone tissue)
- *Maja Dhatvagni* - (fire in the bone marrow tissue)
- *Shukra Dhatvani* - (fire in the semen or reproductive tissues)

Jataragnis normally functioning the *Dhatvagnis* also function normally in accordance if the *jataragnis* hyper-active, the *Dhatvagnis* also will be hyper-active. This leads to tissue depletion *Dhatu Kshaya* on the other hand, if the *jataragni* is weak the *Onatvagni* too will be weak. This depleted *Dhatvagni* will not be capable enough to metabolize the nutrients available at their disposal. There is an accumulation of unprocessed food improperly processed and formed and toxins in the cells of the tissue This will cause cellular blocks as the sticky ama cannot be expelled. As a result, the nutrition to the body tissues will reduce leading to the weakening of tissue compliance and immunity This leads to the formation of various systemic diseases, in this condition the quantity and mass of the toes will increase *hatu vriddhi*, *Dhatu vriddhi* and *Dhatu kshaya*-both are pathological conditions in the Dhatus while the *Butagnis* are involved in digesting and micro-processing the fractions of food which are confined to them, *Dhanvagnis* are moved in oozing the food portions in a different way with the help of self-generated heat the *Dhanvagnis* digest and process themselves in a process called *Chatvagn paka* and abo on the fractions provided after the action of *Bhutags*. This process to the formation of fractions of *Sara Bhaga* or *Prasada Bhage* Nutrient parts and Tissue Wastes. **Prasada bhaga** once again gets divided into 3 fragments. The first portion forms the *Sthanika dhatu* (Local tissue) or nourishes it. The second portion forms the *Poshaka dhatu* (The supporting tissue or tissue responsible for the formation of es subsequent dhatu. The third portion helps in the formation of *Upadhatus* sub-tissues. After joining the metabolic wastes of digestion in the body, the **Kitta Bhaga** is eventually expelled as tissue waste. Heat and energy are released during the *Dhatupaka* process and are used for bodily activity. Functions: *Dhatvagni* when in normal condition: is the formation of tissues and takes part in nourishment and maintenance, also helps in the formation of

Upadhatus heat and energy and causes the elimination of tissue toxins. When Disturbed: When *Dhatvagnis* become weaker or less active, toxins build up in the *dhatu* and produce a pathological increase in the *dhatu* (*Dhatu vidhi*). When the *dhatvagni* becomes more active or inflamed, the *dhatu* burn and deteriorate or are destroyed (*Dhatu shayya*) Both of these situations promote the development of different diseases. The *Upadhatus* are improperly formed, which causes the tissues to be improperly developed and reduces the strength

SYNONIMS OF AGNI: Tejas/Teja/Tejo Bhuta/Tejo Mahabhuta/Tejo Mahabhuta, Vahni, Agni Tatva, Shikhi, Anal

AGNI IN NATURE

How is Agni created? अतरीय उपनिषद् *Vayoho Agni* (Ref-Tattareeya Upanishad), *Agni* or Fire is created from *Vayu*. There is a chronology of the formation of the 5 elements in nature according to Indian philosophical books. The first element to be formed is *Akasha* space. Then, from *shunya* (zero) or empty space, the entire creation occurs. *Vayu* (air) is formed from the *Akasha*. When *Vayu* creates *Agni*, it will contain elements of *Akasha*, its precursor (fire). This *Agni* has elements from its parents, *Vayu* and *Akasha*. Water or *Jala* is formed from *Agni*; *Jala* will contain elements of *Agni*. *Akasha* and *Vayu* According to some, *Jala* causes the formation of *Prithvi* Earth. As a result, the water formed in the *jala* will contain elements of *Agni* *Vayu* and *Akasha*, which will result in the construction of *Prithvi* (earth or soil). As a result, *Prithvi* will include elements from *Jala*, *Teja Vayu*, and *Akasha*. *Vayu* has *Gati* (movements), and we have seen that movements can produce heat or fire This is to tell that movements create heat or fire. When we rub 2 things against each other we cause movement or friction and this in tum produces heat or fire. Ex. Rubbing hands against each other. The more rub or friction, the more is heat or fire produced. When we are rubbing the hands, there is friction taking place not only between the hands but also within the air present between the hands Practically wind or air has large amounts of oxygen and hydrogen gases. Both oxygen and hydrogen take part in combustion and

thus in the production of fire. We can tell that the fire (tendency to ignite a fire or produce combustion) naturally exists within the air in a latent form. This fire gets manifest when there is gas in *Vayu* or winds (air) element.

PROPERTIES OF TEJA OR AGNI: *Teja rupa sparshavat* (Ret-Varthasha Darshana 2/1/31) *Teja* or *Agni* has the properties of *Roopa Sight Visions* and *vayu sparshavat*

DISCUSSION

Within physiological limits, if *Kayagni* is strong then *Dhatvagni* becomes strong. If *Dhatvagni* is strong, then it leads to *Dhatukshyaya*. Similarly, if *Kayagni* is weak then *Dhatvagni* becomes weak and leads to *Dhatu Vriddhi*. But beyond physiological limits in case of low intake or starvation for a long time is an exception to the concept described in Samhita. If *agni* is in an equilibrium state it maintains normal healthy life. A proper quantity of *aahar* keeps the *agni* in equilibrium or within the physiological limit. If *aahar* is not in proper quantity, the equilibrium of *agni* is not maintained. Improper quantity of food can be classified into two categories. In the first category when the quantity of food intake is less for a long time as in the case of starvation causes *Mandagni* and ultimately *Dhaatu Kshyaya* which is an exception. In the second category when the quantity of food is more, as in the case of overeating, it also causes *Mandagni* which further decreases the strength of *Dhatvagni*, and the ultimate result is *Dhaatu Vriddhi*. In the case of *Tikshnagni* equilibrium of *Dhaatu* is maintained by the use of *guru aahar* at short intervals. If *aahar* is not given it cause *Dhatu ksaya*

CONCLUSION

Agni converts food into the form of energy, which is responsible for all the vital functions of our body. *Agni* is the invariable agent in the process of *Ahara Paka* (metabolic transformations). Ingested food is to be digested, absorbed, and assimilated, which is unavoidable for the maintenance of life, and is performed by the *Agni*. *Agni* means it is a substance responsible for digestion and metabolism

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