

A Fundamental and Analytical Study of Concept of *Agni* and its Validation by CDSA Test

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Abstract

To make ayurveda diagnosis more evidence based there is need of testing its basic principles on modern parameters. One of the most important concepts of ancient science is determination of state of *agni*(digestive and metabolic state)of an individual. Deranged state of *agni* has been regarded as the prime cause of a number illnesses e.g. *arsha* (haemorrhoids), *atisara*(diarrhea), *graham* (malabsorption syndrome),*udara roga*(abdominal diseases), *jvara*(various kinds of fevers) etc. The various secretion of the duodenal mucosal glands such as secretin, cholecystokinin, enterogasterone stimulate the discharge of gastric, pancreatic juice and bile from the gall bladder which is necessary for ensuring digestion of food. Together all these determine the functional state of the digestion (state of *agni*) of an individual. There are four functional states of *agniviz*.*samagni* (normal state of digestion and metabolism), *Mandagni*(reduced state of digestion and metabolism), *Tiksnagni*(enhanced state of digestion and metabolism) and *Vishamgni* (Irregular digestion and metabolism) in Ayurveda science. These states can be interpreted from the levels of these digestive hormones and by the levels of products of digestion and metabolism. *Jala nimmajana purisha pariksha* (stool test) has been appreciated as the objective parameter to assess the state of *agni* by ancient sages. In modern science also stool test (CDSA test) has been recognized as an important basis to evaluate the digestion and metabolism of an individual. This test provides information about digestive function, assimilation, retention, bacterial adjust, yeast abundance, metabolism, and pancreatic capacity. An attempt has been made to analyze the CDSA test in terms of ayurveda point of view. As Ayurveda science recognizes the *mandagni* and *grahani dushti* as more significant illnesses, this test also is primarily indicative of *samagni*, *mandagni* and *grahani dushti* states. In present day science likewise stool test (CDSA test) has been perceived as a critical premise to assess the assimilation and digestion system of a person. This test gives data about assimilation, retention, bacterial adjust, yeast abundance, aggravation, metabolic movement, and safe capacity and pancreatic capacity. An endeavor has been made to break down the CDSA test as far as ayurveda perspective.

Keywords

Agni, CDSA, Validation



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INTRODUCTION

Ayurveda science requires research in the areas of its diagnostic principles so that the Ayurvedic diagnosis can be made more pinpointed leading to more effective treatment strategies. There are many fundamental principles in Ayurveda which can be helpful in understanding the maladies in modern medicine. Among these, Ayurvedahas described an important factor of digestion and metabolism in our body as *Agni*. *Agni dushti* has been described as the root cause of all diseases in humans¹. The word “*Agni*” has been used in the sense of digestion of food and metabolism. It converts the food to a form of energy, which is responsible for all the vital functions of our body. Hence *Agni* is regarded as the cause of life, complexion, strength, health, nourishment, lusture, oja, *teja* (energy) and *prana* (life energy)².

The assessment of the state of *agni* is very crucial in the practice of *Ayurveda*. It goes about as a window first to comprehend the individual's stomach related framework. Secondly, the digestion system (assimilation and retention) . The use of therapeutics in an individual depends on the state of *agni*. The tools such as examination of tongue, questions regarding digestive fire

and *jala nimmajana purisha pariksha* are based on *Ayurveda* to assess *agni*. Among these *purisha pariksha* has remained one of the objective parameter to assess the state of *agni* in terms of *jala nimmajana purisha pariksha*³. Moreover *purisha pariksha* in terms of colour, odour, consistency, quantity, froth and mucous is indicative of various diseases. No such chemical tests of *purisha pariksha* are described in *Ayurveda*. Since *Ayurveda* science is facing the challenge of generating scientific evidence on quality-based data, one such test based on modern technology is Comprehensive digestive stool analysis test also called CDSA test. Therefore by bringing-up modern scientific knowledge, technology to explore *Ayurveda* scientific treasure following prevalent scientific methods can be useful step in the direction of making *ayurveda* science evidence based. The purpose of this study is to validate the *agni* of an individual on the basis of prevalent scientific method i.e. CDSA to assess the state of *agni*. This test provides information about digestion, absorption, bacterial balance, presence of excessive yeast, signs of inflammation, metabolic function, and immunity. CDSA is the first non-intrusive assessment of gastrointestinal

capacity that incorporates examinations of digestive process bacterial adjust, yeast and parasites yeast and parasites. CDSA 2.0 uses innovative GI biotechnology to assess digestion, absorption, pancreatic function, and inflammation, in addition to bacterial balance, yeast, and parasite infection.

AIMS and OBJECTIVES

To understand the concept of *agni* from ayurveda as well modern point of view.

To evaluate the state of *jatharagni* by CDSA test.

MATERIALS AND METHODS

This study is purely literary in which exhaustive analysis of Ayurveda and modern literature has been carried out to understand the perception of *agni* from ayurveda as well modern point of view. With the help of available literature endeavors have been put forth for the Comprehensive understanding and application of CDSA test in terms ayurvedic parameters.

REVIEW AND DISCUSSION

According to Ayurveda there are 13 types of *Agni* in body viz. 7 *Dhatwagni*, 5 *Bhutagni* and 1 *Jathragni*. Among these, *Jathragni* is

the prime one and nourishes the other *Agnis*. *Jathragni* refers to the whole process of digestion in G.I.T. *Bhutagni* alludes to the last processing of food products by liver. *Dhatwagni* refers to tissue metabolism. These types of *Agni* are further divided into four types on the basis of their abnormal functional states viz. *Mandagni* (Hyposecretion of digestive enzymes), *Tiksnagni* (Hypersecretion of digestive enzymes) and *Vishamgni* (Irregular secretion of digestive enzymes)⁴.

The term *agni* is employed to cook the ingested food and enables it to fit for digestion. The digestion of food in the *amashya* (stomach) and *pachyamanashya* (small intestine) involves the splitting of complex food substances into their simpler components, so that they may be rendered fit for digestion. is made possible by *agni* also called *kayagni* or *pachakagni* or *pachaka pitta*⁵.

Agni and *Pitta*:

Acharya Sushruta described *pitta* as *agni* or fire as it performs the functions similar to fire⁶ such as *pachana* (digestion), *dahana* (burning, combustion), *parinamana* (conversion), *pravritti* (transformation), *prakashana* (illumination), *ranjanprabhakarana* and *tapana*

(heat). While Acharya Caraka considers *agni* to be a part of *pitta*. Acharya Chakrapanidutta has made it more clear that *pitta* of the body is not flaming fire but it refers to the phenomenon of heat associated with fire⁷. In modern science the functions performed by the enzymes resemble to those executed by *pitta* in Ayurveda science viz. splitting or *sanghatabheda*, transformation or *parinamana*, mutation or *pravritti*, oxidation or *dahana*.

Pachaka pitta/ Pitta verses Bile and pancreatic juice

The phenomenon of heat associated with the *pitta* has been explained on the basis of its *panchabhoutika* composition. *Tejomahabhuta* among the *panchmahabhuta* dominates the composition of *pitta* because of which it is stated to perform *pakadi karma* or various kinds of chemical reactions⁸. Thus a substance *tejasika* in nature enters into the *pitta* complex enables it to behave very much like *agni*. The other components viz. *snehatva* (viscosity), *saratva* (fluidity), *visragandha* (fleshy smell), *dravatva* (liquidity), and *laghutva* are from lesser quantities of substances belonging to *apa*, *prithvi*, *vayu* and *nabha mahabhuta*⁹. The colour taste smell and density of *pachaka pitta* has not been mentioned

except for *dravatva*. The concept of *pachakapitta* points to internal secretions of *pittadhara kala*¹⁰; in the *grahani* (corresponding to mucosal glands of the duodenum) some of them exercise a regional influence and others systemic particularly metabolic or secretogogue influence of the food which has attained *amlabhava* resulting in secretion of *accha pitta* (corresponding to hepatic and pancreatic juice). The combined bile and pancreatic juice exhibit general characteristics ascribed to *pitta*. The *ishatsneha* (viscosity) resembles to bile which contains small quantities of soap, fats, cholesterol and lecithin. The *amla rasa* is due to contamination with the gastric contents. Its yellowish, bluish or greenish colors can be attributed to those functions of its composition as may have been derived from *rakta*. The *tikshanatva* and *ushantava* are from its digestive functions.

The reference to *pitta* as the *vikrita* (by-product) of *rakta* is equally significant¹¹. *Pitta* is the byproduct due to its intimate coexistence with *rakta* and its capacity to vitiate it. The colour of *pitta* and *rakta* are homologous. Both of them share a common site *pliha* and *yakrita*¹². The pigments bile (the bilirubin and biliverdin) are essential constituents of hemoglobin. Which means

rakta is the the seat of *pitta*. The bile pigments are the waste products (mala of *rakta*) the colours are of both of these are same, both have characteristic fleshy smell. This leads to conclusion of blood (*rakta*) and bile (\approx *pitta*) relationship. The further supportive references include abnormal functional states of *pitta* leads to yellowness of urine, feces, eyes and skin (bilirubinemia)¹³. The chakrapanidutta commentary on *shakhashrita kamala* i.e. nonexcretion of *pitta*(bile) which imparts color to stool (*malaranjana*) leads to clay coloured stool (*shwetavarcha*) also puts *pitta* in context to the bile. This all lead to the conclusion that the physical properties of *pitta* as mentioned in classical texts refer to the liver bile.

Mode of Action of Agni in the Light of Modern Science

Agni performs the task of digestion and metabolism in the living beings. This involves the digestion of food in the *amashya*(stomach) and *pachyamshya* (small intestine) which leads to splitting of complex food substances to simpler ones (breakdown of complex proteins to amino acids fats into fatty acids and glycerol and starches to glucose), so that they may rendered fit for absorption is made possible

by *agni*(digestive juices that contain powerful enzymes).

The *amashaya* is located in the space between *stana*(mammary glands) and *nabhi (umbilicus)*¹⁴ where digestion of all types of food takes place. The fully digested food is a completely changed form and is distributed to the entire body by *dhamani*(blood vessels)¹⁵. Acharya Vagbhata's statement of *pittasthana* located between *hrit (heart)* and *nabhi (umbilicus)* especially in the region of (umbilicus)¹⁶ corresponds to the J shaped stomach's position exactly between the heart in the left thorax and the umbilicus in the abdomen. The duodenum, pancreas jejunum and major part of ileum also occupy nearly the same area. Here several powerful factors are secreted. The *pachakagni* is mainly concerned with the chemical processes involved in GIT. While explaining the digestion process *acharya Charaka* has made reference to *madhura* and *amla* aspects of digestion in the *amashya* and *katu avastha* to *pakvashya* (large intestine) i.e. the gastric digestion corresponds to first two *avastha* of digestion: *madhura*(sweet), and *amla*(sour) and *katu avastha* of digestion to colonic bacterial activity¹⁷. These correspond to the starch (*madhura*) and protein (*amla*) digestion in the stomach. The

conversion of the insoluble starch into soluble dextrin begins in mouth under the influence of ptyalin and is completed in the fundus of the stomach. Then commences the protein digestion, which involves the conversion of insoluble proteins to the soluble peptones under the influence of pepsin and HCL secreted by stomach. As the acidified chyme progresses little by little to the pylorus to the duodenum, it activates the mucosal glands of the organ to secrete the hormone secretin which being carried to the pancreas excites pancreatic juice: partly emulsified fat in the gastric digestion stimulates the mucosal cells of the duodenum to secrete the hormone cholecystokinin which being carried to the liver stimulates gall bladder to empty its contents. Both bile and pancreatic juice are then poured in the duodenum as *accha pitta*. Again the *pittadhara kala* (?pitta supporting/secreting membrane) is the structure which holds the chyme derived from the four kinds of solid and liquid foods propelled from the *amashaya* towards *pakvashya* signifies the duodenum to the location of *agni*¹⁸. Acharya Vagbhata has explained *grahani* and *pittadhara kala* as the seat of *pachaka pitta*. This organ is responsible for the holding of food in the

amashaya for the duration of digestion in this organ, and identifies the *kala* (mucous membrane) as *agnidhara kala*¹⁹. Intestinal digestion in *pachayamanashaya* stage signifies the separation of nutrient fraction from the *kitta* or residue of the food and the absorption of the former and the egestion of the latter.

Katuavasthapaka: The last stage of digestion in the *pakvashya* (colon) occurs through the activity of bacteria. Numerous bacteria e.g. colon bacilli, are available typically in the colon i.e. cecum, ascending and transverse colon. These bacilli are fit for processing little measure of cellulose, therefore provide a couple of calories of additional sustenance to the body. Microorganisms are likewise required in the assimilation of protein into amino acids into less complex substances like hydrogen sulfide, and fatty acid. Bacterial activity results in formation of other fundamental substances like vitamin K, Vitamin B12, thiamine, riboflavin also. The vitamin K is particularly imperative on the grounds that the measure of this vitamin in the day by day ingested nourishment is typically deficient to keep up sufficient blood coagulation. Around 1500 ml of chyme typically goes through the iliocecal valve

into digestive organ. The chyme stays in the internal organ for 3-10 hrs, it gets to be distinctly strong or semisolid and contains almost 100 ml water. The sodium particles are consumed by the mucosa of colon by dynamic transport, making an electrical potential inclination, which brings about assimilation of chloride particles. The assimilation of sodium and chloride particles makes an osmotic inclination over the substantial intestinal mucosa, which thus causes ingestion of water.

Thus it can be concluded that a local or regional influence exercised by the chemical or hormonal factor or complex of factors may be mainly responsible for the making available to the intestine (*agni*) powerful digestive juices necessary for proper digestion of food and under the influence of the acid chyme (*acchapitta*) as the latter traverses through the duodenal mucosa. The several internal secretions, elaborated by the duodenal mucosal glands such as secretin, cholecystokinin, enterogasterone are the agencies which excite the discharge of gastric, pancreatic juice and bile from the gall bladder necessary for ensuring intestinal digestion. Together all these determine the functional state of the digestion (state of *agni*) of an individual.

In Ayurveda science four functional states viz. *samagni* (normal state of digestion and metabolism), *Mandagni* (reduced state of digestion and metabolism), *Tiksnagni* (enhanced state of digestion and metabolism) and *Vishamgni* (Irregular digestion and metabolism) have been observed. These can be interpreted from the levels of these digestive hormones and by the levels of products of digestion and metabolism.

Assessment of *agni* by *purisha pariksha* (CDSA test)

Purisha pariksha.

There is no immediate portrayal of *Purisha Pariksha* under a different heading in Ayurvedic classical texts yet scattered references are accessible in regards to the variations from the norm as far as its shading, smell, consistency, amount, foam and mucous and so forth relating to different illnesses. No such chemical tests are described in Ayurveda as it is done now. Rather, a unique method of *Jala-Nimajjan Purisha Pariksha* has been described in the classical texts, which was done to assess the presence of ama (undigested food particles particularly presence of fat) in the stool which appears to be chiefly due to pancreatic insufficiency.

The *ama purisha* being heavy and sinks in water while the *nirama feces* float on the surface of water²⁰. Thus they interpreted the stool as the indicator of the various functional states of *agni* or gastrointestinal functional states which is nowadays is carried out by CDSA test.

Comprehensive digestive stool analysis (CDSA) test

CDSA 2.0 utilizes propelled GI biotechnology to assess assimilation, ingestion, pancreatic capacity, and inflammation, along with bacterial, yeast, and parasite balance. The CDSA 2.0 additionally recognizes inflammatory conditions e.g. inflammatory Bowel Disease (IBD), painkillers related enteropathy. Great absorption needs biochemical substances to breakdown, acclimatize, and dispose of supplements. These include digestive

enzymes, regulatory digestive hormones, stomach acid, and bile acids.

Pertaining to their levels in the stool *ayurvedic* diagnosis of various functional states of *agni* e.g. *samagni* (normal levels of digestive and metabolic hormones and enzymes), *Mandagni* (reduced levels of digestive and metabolic hormones and enzymes), *Tiksnagni* (increased levels of digestive and metabolic hormones and enzymes) and *Vishamgni* (irregular levels of digestive and metabolic hormones and enzymes). However on analysis of CDSA test it is found that the test is mainly indicative of *samagni, mandagni* and *grahani dushti* states. Also Ayurveda science recognizes the *mandagni* and *grahani dushti* as more significant illnesses. The details of CDSA test and its comparative ayurvedic interpretation is given below:

Table No.1 Markers of CDSA test²¹ and its Ayurvedic interpretation

Digestive markers	Result	Suspect	Ayurveda Interpretation
Chymotrypsin	Low <0.9 mcg/g	Pancreatic insufficiency or hypochlorhdyria Other factors include slow transit time	<i>Mandagni</i>
	Normal 0.9-26.8 mcg/g 1 SD=2.1-13.7	Adequate exocrine pancreatic function Rapid transit time	<i>Samagni</i>
	Elevated >26.8 mcg/g		<i>Agni dushti</i>

Pancreatic Elastase 1 (PE1)	Low 100-200 mcg/g	Mild to moderate pancreatic insufficiency	<i>Mandagni</i>
	Very Low <100 mcg/g	Moderate to severe pancreatic insufficiency	<i>Mandagni</i>
	Normal >200 mcg/g	Adequate exocrine pancreatic Function	<i>Samagni</i>
Putrefactive Short-Chain Fatty Acids (SCFA's)	Low <1.3 micromol/g	Low protein diet	
	Normal 1.3-8.6 micromol/g	Adequate digestion and absorption of dietary protein	<i>samagni</i>
	Elevated >8.6 micromol/g	suspicion of Hypochlorhydria, pancreatic insufficiency, protein malabsorption	<i>Mandagni</i>
Meat fibers/Vegetable fibers	Inside reference range;	Adequate digestion and absorption of dietary protein (meat or fish) and vegetable fiber	<i>Samagni</i>
	Outside reference range:	Pancreatic insufficiency, hypochlorhydria, inadequate mastication, bile salt insufficiency	<i>Mandagni</i>
ABSORPTION MARKERS			
Triglycerides	Low <0.2 mg/g	Low dietary fat intake	<i>Alpahara</i> (reduced dietary intake)
	Normal 0.2-3.3 mg/g 1 SD=0.4- 1.7	Adequate fat hydrolysis	<i>Samagni</i>
	Elevated >3.3 mg/g	Incomplete fat hydrolysis	<i>Mandagni</i>
Long Chain Fatty Acids (LCFAs)	Low <1.3 mg/g	Low dietary fat intake	<i>Alpahara</i> (reduced dietary intake) <i>Samagni</i>
	Normal 1.3-23.7 mg/g 1 SD=3.4- 15.8	Adequate free fatty acid absorption	
	Elevated >23.7 mg/g	Malabsorption Increased mucosal cell turnover Bacterial overgrowth of the small intestine Bile insufficiency	<i>Mandagni</i>
Cholesterol	Low <0.2 mg/g	Low dietary fat intake	<i>Alpahara</i> (reduced dietary intake)

	Normal 0.2-3.5 mg/g	Adequate absorption of dietary cholesterol	<i>Samagni</i>
	Elevated >3.5 mg/g	Malabsorption, Bacterial overgrowth in the small Intestine	<i>Mandagni</i>
Phospholipids	Low <0.2 mg/g	Insufficient dietary fat intake Dietary phospholipid deficiency Impaired gall bladder function	<i>Alpahara/mandagni</i>
	Normal 0.2-8.8 mg/g	Adequate dietary phospholipid intake and absorption	<i>Samagni</i> <i>Mandagni</i>
	Elevated >8.8 mg/g <i>Result</i>	Malabsorption	
Fecal Fat (Total)	Low <2.6 mg/g	Low dietary fat intake	<i>Alpahara</i>
	Normal 2.6-32.4 mg/g	Adequate dietary fat absorption	<i>samagni</i>
Fecal Fat (Total)	Elevated >32.4 mg/g	Malabsorption,	<i>Mandagni (ama mala)</i>
METABOLIC Markers			
Short-Chain Fatty Acids (SCFAs)	Low <13.6 micromol/g	Insufficient fiber	<i>Mandagni</i>
	Normal □ 13.6 micromol/g	Suggests adequate energy for the Colonocytes	<i>samagni</i> <i>Mandagni</i>
pHC	Low <6.1	Carbohydrate maldigestion or malabsorption,	<i>Samagni</i>
	Normal 6.1-7.9	Balanced concentration between acids and bases in the colon	<i>Agnidushti</i>
	Elevated >7.9	Hypochlorhydria Increased bile flow rate Pancreatic bicarbonate Associated with increased risk for colorectal cancer	
Beta-glucuronidase	Low <337 U/g	Reduced enterohepatic recirculation and increased excretion of toxins, drugs, steroid hormones, and other compounds subject to glucuronidation	<i>Mandagni</i> <i>Samagni</i>
	Normal 337-4,433 U/g	Balanced microbial activity from anaerobic organisms that produce this enzyme i.e. <i>Bacteroides</i> , <i>Clostridia</i> , <i>E.coli</i> , <i>Peptostreptococcus</i>	<i>agnidushti</i>
	Elevated >4,433 U/g	Enhanced activation and enterohepatic recirculation of pollutants, hormones,	

		and various drugs inside the body.	
Lithocholic: Deoxycholic acid ratio (LCA:DCA)	Low <0.39 mg/g	deranged colonic ecology e.g. of Clostridia, Bacteroides, Enterococcus and Lactobacilli	<i>Mandagni</i>
	Normal 0.39-2.07 mg/g	Healthy ratio of secondary bile acids reflecting balance between dietary and endogenous cholesterol	<i>Samagni</i> <i>Agnidushti</i>
	Elevated >2.07	Susceptibility with the increased risk of breast and colorectal cancer	
IMMUNOLOG Y MARKERS			
Eosinophil Protein X	Normal □7.0 mcg/g	No active inflammation of the GI tract, successful elimination diets	<i>Samagni</i>
	Elevated >7.0 mcg/g	Inflammation and/or tissue damage in the GI tract. This could be due to food allergy,	<i>Mandagni(Grahani dushti)</i>
Calprotectin	Normal <50 mcg/g	No active inflammation of the GI tract	<i>Samagni</i>
	Elevated 50-100 mcg/g	Low-grade inflammation of the GI tract is present.	<i>Mandagni (alpagrahani dushti)</i>
	Elevated >150 mcg/g	significant inflammation in the gastrointestinal tract.	<i>Mandagni</i> <i>Mandagni (mahat grahani dushti)</i>
	Elevated >250 mcg/g	adenomas, colorectal cancer, diverticulitis	
Lactoferrin CDSA/P, CDSA	Negative	No acute inflammation	<i>Samagni</i>
	Positive	Significant mucosal inflammation from bacterial or parasitic infection, diverticulitis or active Inflammatory bowel disease (IBD)	<i>Mandagni (grahani dushti)</i>
Microbiology Markers			
Beneficial Bacteria	Within normal levels <i>Lactobacilli</i> >2+ <i>Bifidobacteria</i> >4+	Suggests healthy levels of beneficial flora	<i>Samagni</i>
	Below normal levels <i>Lactobacilli</i> <2+ <i>Bifidobacteria</i>	Susceptible to pathogenic bacterial infection, increased toxic enzyme exposure, increased risk for mucosal barrier defects	<i>Mandagni</i>

	<i>ia</i> <4+		
	<i>E.coli</i> <4+		
Additional Bacteria	Non-Pathogenic (NP)	Organisms that constitute normal aerobic flora or commensal flora, and have not been recognized as etiological agents of disease	<i>Samagni</i>
	Potential pathogen (PP)	Organisms able to be opportunistic pathogens	
	Pathogen (P)	Organisms having the potential in certain hosts to be opportunistic	<i>Mandagni</i>
Mycology	Candida species	Organisms that may be involved in gastrointestinal symptoms	<i>Mandagni</i> <i>Grahani dushti</i>
	Yeast, not Candida (includes <i>Cryptococcus</i> , <i>Geotrichum</i> , and <i>Rhodotorula</i> species)	Rare, opportunistic organisms usually isolated only in immunocompromised hosts	
H. pylori Stool Antigen	Negative	No active <i>Helicobacter pylori</i> infection, or successful eradication	
	Positive	active <i>Helicobacter pylori</i>	
Clostridium difficile toxins A & B	Negative	Absence of both toxins A and B, or extremely low toxin level	
	Positive	<i>Clostridium difficile</i> infection	
Occult blood	Negative	No hemoglobin in the stool	
	Positive	abnormal amounts of hemoglobin from excessive blood loss.	<i>grahani dushti</i>
Parasitology	Positive	Parasite infection and Dysbiosis	<i>grahani dushti</i>

To assess the severity of *mandagni* state (mild, moderate, severe) scoring pattern can be generated which will be helpful in planning the therapeutic measures to the patients.

CONCLUSION

All diseases arise from the *mandagni* state.

Therefore the assessment of *mandagni* state is essential. In Ayurveda along with questions regarding the digestion of food (*anumana pariksha*), tongue examination (coated=*sama*, uncoated = *niram*) and *purisha pariksha* have remained the key methods of observation to assess the state of *agni*. From the above discussion it is clear

that a local or regional influence is mainly responsible for the making available to the intestine (*agni*) powerful digestive juices necessary for proper digestion of food and under the influence of the acid chyme (*acchapitta*) as the latter passes through the duodenal mucosa. The several internal secretions, secreted by the duodenal mucosal glands such as secretin, cholecystokinin, enterogasterone are the agencies which excite the discharge of gastric, pancreatic juice and bile from the gall bladder necessary for ensuring intestinal digestion. Thus digestive enzymes, regulatory digestive hormones, stomach acid, and bile acids perform good digestion (breaking down, assimilation, and separation of nutrients). Together all these determine the functional state of the digestion (state of *agni*) of an individual. Pertaining to their levels in the stool (The CDSA test) *ayurvedic* diagnosis of various functional states of *agni* especially *samagni* (normal levels), *mandagni* (reduced levels) and *grahani dushti* (indicative of ulceration in intestine) can be very easily made.

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