



REVISITING EVIDENCE OF PANCHGAVYA FOR HUMAN HEALTH AND ENVIRONMENT

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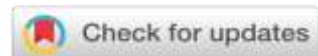
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ABSTRACT

Bhaishajya Ratanavali defines *Panchgavya* as the group of five obtained from cows. These are *Godudgh* (Cowmilk), *Godadhi* (Cow curd), *Goghrita* (Cow ghee), *Gomutra* (Cow urine) and *Gomaya* (Cow dung). *Panchgavya* benefits humans and the environment in many aspects such as agriculture, pharmaceuticals, and treatment. Cow dung and urine are used as best fertilizers due to abundance of micronutrients and macronutrients, which increase soil quality. Cow urine, ghee and milk used as media in purification of drugs. *Ksheer* (Cow milk) and *Ghrit* are only two materialistic things recommend in *Achara Rasayana* (code of conduct). Many studies have been published to evaluate efficacy of *Gomutra* in *Pandu* (anemia), *Kushtha* (skin disorder), *Arsha* (hemorrhoids) and *Udar roga* (abdominal disorder). *Gorasa* (Cow milk) is best *Rasayana* (rejuvenation) and *Jivaniya dravya* (beneficial for life), *Goghrita* is referred as *Chakshushya* (beneficial for eyes), provides strength, complexion, good voice, and intelligence. *Godadhi* is indicated in *Atisar* (diarrhea), *Pinasa* (chronic rhinitis), *Aruchi* (anorexia), *Mutrakruchha* (dysuria) and *Kshaya* (emaciation). This review article highlights the diverse uses and probable modes of action in detail.

Keywords: *Panchagavya*, Cow dung, Cow urine, Cow milk, Cow curd, Cow ghee.

INTRODUCTION

Food chain shows integrated relationships in ecosystem; it reveals organism dependency on each other for survival. Similarly, humans also depend on many animals e.g. fish, beef, goat, cow etc. for its regular need. Cow also known as mother in Hindu mythology nourishes us with its milk, curd and ghee; even its waste like cow dung and urine are best for therapeutic purpose. In pharmaceuticals cow urine, ghee and milk are used as *Shodhan dravya* (media for purification) and *Bhavna dravya* (media for wet grinding). In agriculture, cow dung and urine are used as the best fertilizers due to the abundance of micronutrients and macronutrients, which increase soil quality. Many macronutrients like nitrogen, potassium, phosphorous, and micronutrients like zinc, iron, and copper are found in whole *Panchgavya* (Five obtained from cow), making it therapeutically beneficial. Ghee is used as media in formulations like *Avaleha* (ayurvedic nutraceuticals). *Ksheer* (Cow milk) and *Ghrit* (Cow ghee) are only two materialistic things recommended in *Acharya Rasayana* (code of conduct).¹ *Gorasa* is best *Rasayana* (rejuvenation) and *Jivaniya dravya* (beneficial for life); its properties are indicated same as *Oja* (immune system).² Cow dung can absorb all the alpha, beta and gamma rays and prevent from atomic radiations.³ Cow urine is recommended in cardiac pathologies, renal pathologies, indigestion, Stomachache, diarrhoea, edema, jaundice, anemia, hemorrhoids, and vitiligo.⁴ *Goghrita* is referred as *Chakshushya*, it provides strength, complexion, good voice and intelligence.⁵ In *Atisara* (diarrhoea), *Pinasa* (chronic rhinitis), *Aruchi* (anorexia), *Mutrakruchha* (dysuria) and *Kshaya* (emesis), *Goddadhi* is indicated.⁶

Material and methods

Milk as an ingredient:-

Name of formulation	Indication	Probable mode of action	Reference
<i>Brumhanigutika</i>	<i>Vajikarana</i>	<i>Vrushya</i>	Ch. Chi. 2-1/ 29
<i>Tryushnadighrut</i>	<i>Vatajgulma</i>	<i>Pacifies vitiated vata dosha</i>	Ch. Chi. 5/ 65
<i>Kasmardadighrut</i>	<i>Kshayajkasa</i>	<i>Brumhana</i>	Ch. Chi. 18/ 164
<i>Decoction of Madhura Gana</i>	<i>Raktaja Ashmari</i>	<i>Pacifies vitiated Pitta dosha</i>	Ch. Chi. 26/75

Cow milk:-

Cow milk is a highly nutritious liquid per 100 ml milk contains about 87 % water, 3-4% fat, 3.5% protein, 5% lactose and 1.2 % minerals also it is an essential source of vitamins (e.g. retinol, B2 and B12), phosphorous, zinc and calcium. According to *Charak samhita*, it is considered as *Brumhana* (provides nourishment), *Vrushya* (provides aphrodisiac properties), *Balya* (provides strength) and *Medhya* (provides intellect) may be because of its high nutritional value. Also, it is recommended as *Manaskar* (good for psycho system); many research articles suggest that milk increases serotonin, dopamine, endorphins, and oxytocin (all four are feel-good hormones). Therapeutically, cow milk is helpful in both, i.e. *Shamana* (auto pacification of vitiated *Doshas*) and *Shodhana* (excretion of vitiated *Doshas*). According to *Acharya Sushruta*, four times diluted milk is *Bastishudhhikara* (purification of urinary bladder); also, in *Mridukoshthi* (soft nature of elimination of faeces), it is *Virechaka* (laxative). In Ayurveda literatures, it is used as media. These formulations are named *Ksheerpaka* (medicated milk); scholars of Ayurveda recommend *Ksheerpaka* as *Shoolamamaodbhavam Jayeta* (gives relief in pain due to indigested food).⁷ In the chapter of *Jwarachikitsa*, milk is recommended as best to pacify *Jeerna jwara* (chronic fever), four times diluted milk is good for all *Jwara* (fever) and *Dharoshandugdh* (fresh cow milk) is an instant remedy for *Vatapittaj Jwara*. Milk is again advised in the case of *Madatyia* (alcoholism). The tables listed below show *Samhita's* (classical ayurveda literature) reference to cow milk as an ingredient, *Anupana* (after drink) and *Sahapana* (co-drink).

+ Dugdha			
Vrushmuladi tail	Vatavyadhi	Pacifies vitiated vata dosha	Ch. Chi. 28/171
Dugdha + Tila tail	Vatajshirashool	Pacifies vitiated vata dosha	Su. U. 26/5
Dugdha + ghrut (for oral intake and nasya)	Suryavrutta	Pacifies vitiated vata & pitta dosha	Yoga Ratnakar
Basantkusumakarras	Prameha	Immunomodulator	R.R.S. Pramehadhikara

Milk as Anupana

Name of formulation	Indication	Probable mode of action	Reference
Nagaradi yoga	Vatajgulma with shool	Pacifies vitiated Vata dosha	Ch.Chi.5/91
Traymanaksira yoga	Pittaj gulma	Balya & pacifies vitiated vata pitta dosha	Ch. Chi. 5/128
Silajatu	Vatajgulma	Pacifies vitiated vata dosha	A.H. Chi. 14/51
Arjun churna	Hridroga	Pacifies vitiated vata dosha	V.S. Hridroga/19

Milk as Sahapana-

Name of formulation	Indication	Probable mode of action	Reference
Yashtimadhu	Medhya rasayana	Medhya	Ch.Chi.1-3/ 30
Rasna ghrut	Rajyakshama	Preernana, Balya, Vrushya	Ch. Chi. 8/93
Bala ghrut	Rajyakshama	Preernana, Balya, Vrushya	Ch. Chi. 8/93
Eranda tail	Udara roga	Rechana	Su. Chi. 14/9
Vidaryadi yoga	Pittaj kasa	Vatanulomaka	Ch.Chi.18/96

Curd

As per *Sushruta Samhita* properties of *Godadhi* are appetizer, provide strength, pacifies vitiated *Vata dosha*, *Snigdha* (unctuous), *Ruchiprada* (increase taste) and *Pavitra* (auspicious). Many research articles show that curd is good for gastrointestinal problems. It is also a blood purifier and used in blood-related disorders. It is an efficient probiotic; may be this is the reason behind its use in diarrhoea and other GIT-related problems like anorexia. The lactobacilli count in fresh curd varied between 5.5×10^7 and 6.5×10^8 CFU/ml. It also shows some antifungal activities. It increases immunity by stimulating mucosal immunity and NK cell activities and cytokines. Due to so many benefits, curd is used in disorders as *Anupana*, *Sahapana* and *Bhavna Draya*; also, it is an ingredient of many formulations. The below listed table is a compilation of *Samhita's* references regarding *Godadhi*.

Ksheer is also used as media in formulations like *Ksheerpaka*; it is used to extract potent elements of the drug and is helpful to pacify *Teekshnata* (pungent nature) of the drug.⁸*Ksheerpaka* are *Vatapitta Shamaka*. *Acharya Chakradutta* recommends *Arjun Ksheerpaka* in cases of cardiac disorder. *Sthiradiksheerpaka* is indicated in *Pittaj kasa*, which pacifies vitiated *Pitta dosha*.⁹*Kakolyadi ksheerpaka* is indicated in *Sushruta Uttartantra* to treat urine disorders.¹⁰*Panchmoolishrukshera* is advised to take in case of urine disorder such as *Mutrodavrutta* (reverse movement of urine); it benefits in disorder by *Vatanulomana* (descending movement of gas).¹¹

One more term is introduced in *Bhagna chikitsa* (treatment of fracture) i.e. *Grushtiksheera* (milk of cow who recently has delivered a calf). It can be correlated to colostrums; it helps in regeneration and acceleration in the repair of muscle, skin, collagen, bone, cartilage and nerve tissues.

Curd as ingredient

Name of formulation	Indication	Probable mode of action	Reference
<i>Asthakatwar taila</i>	<i>Grudhrasi, Urugraha</i>	Pacifies vitiated <i>vata dosha</i>	Ch. Chi. 27/47
<i>Vatsakadilepa</i>	<i>Urustambha</i>	Pacifies vitiated <i>vata dosha</i>	Ch. Chi. 27/54
<i>Pippalyadi lavana</i>	<i>Udara roga</i>	-	Ch. Chi. 13/160
<i>Chitrakadadhi</i>	<i>Arsha roga</i>	<i>Dipana karma</i>	Ch. Chi. 14/ 76
<i>Pippalyadi yoga</i>	<i>Sadhyosnehana</i>	<i>Snigdha</i>	Su. U. 31/38

Curd as Anupana

Name of formulation	Indication	Probable mode of action	Reference
<i>Twakadi churna</i>	<i>Arsha</i>	Pacifies vitiated <i>vata dosha</i> and <i>Deepan Karma</i>	Vangasena Arsha /54
<i>Trikatvadiyamak</i>	<i>Amatisara</i>	<i>Deepana</i>	Su. U. 40/56
<i>Ajmoda, Mocaras, Shringvera, Dhataki</i>	<i>Atisara</i>	<i>Deepan and Rodhaka</i>	Sa. M. 6/52
<i>Hingusauvarchaladyaghrut</i>	<i>Gulma</i>	Pacifies vitiated <i>Vata dosha</i>	Ch. Chi.5/69
<i>Ksharavalehya</i>	<i>Vatajgulma</i>	Pacifies vitiated <i>Vata dosha</i> and <i>Deepan karma</i>	S.U.42/41-44

GOGHRUT

Almost every section of Ayurveda literature on treatment prescribes medicated ghee as a dosage form. Ghee pacifies vitiated *Vata* and *Pitta dosha*. It benefits *Rasadhatu*, *Shukradhatu*, *Oja*, voice and complexion.¹² It is recommended to all age groups, patients suffering from *Kshatksheerna* (injury followed by emaciation), and those who desires good memory, intellectual, vision, progeny, strength, and digestive fire. According to experiments, conjugated linolenic acid in ghee increases antioxidant activity and prevents atherogenesis.¹³ Cow ghee is a rich source of vitamins A, D, E, and K. In Ayurveda classics, it is indicated as *Nityasewaniyarasayana* (rejuvenating drugs which should be daily consumed). Being the best among all *Sneha* (fatty substances) and *Vayasthapan dravyas* (drugs which helps to restores young age), it maintains the normal function of *Dosha* (vital force), *Dhatu* (fundamental tissues), and *Mala* (waste substances). In *Kustha* (skin disorder), with a predominance of *Vata*, first of all, drinking

only ghee or medicated ghee is beneficial.¹⁴ Ghrut is recommended in the *Shodhana* procedure (elimination of toxins) to dissolve toxins in it, as in the human body, only fat-soluble toxins get stuck (water-soluble toxins flushed through urine); Ghee dissolves toxins in it and moves to the gut because of its *Snigdha* property. Ghee can even cross the blood-brain barrier and any other channels because of its *Sukshma* (minute size) property; hence, it is helpful in the rejuvenation process. All the properties of ghee are almost similar to *Oja*; this property helps in *Shamana*. A modern concept of liposomal theory suggests its targeted drug delivery system, which justifies medicated ghee's mode of action.¹⁵ Medicated ghee also increases shelf life, palatability of formulation and pharmaceutical properties of the drug as it provides media to fat-soluble elements. Along with this itself, properties of ghee increase the potency of the drug. Some examples of *Ghrutkalpana* (medicated ghee formulations) are shown below-

Name of formulation	Indication	Probable mode of action	Reference
<i>Lashunadya ghrut</i>	<i>Unmada</i>	Proper extraction of active alkaloid, pacifies <i>Teekshnata</i> of drugs	Chakradutta
<i>Trifaladi ghrut</i>	<i>Jwara</i>	Proper extraction of active alkaloid, increase <i>Rechana</i> effect (laxative effect) along with paci-	Su. U. 39/245-249

		fies <i>Rukshta</i> (dryness) of drugs	
<i>Yakshmanivarakaghrit</i>	<i>Rajyakshama</i>	<i>Balya, Snigdha, Ojovardhak</i>	Su. U. 41/ 46-47
<i>Pathadighrut</i>	<i>Panchakasahara</i>	<i>Vatanulomaka</i>	Su. U. 52/31-32
<i>Kaleyakadighrut</i>	<i>Kamala</i>	Pacifies vitiated <i>Pitta dosha</i> , and <i>Ushnata</i> of <i>Haridra</i> , increases palatability	Su. U. 44/ 34

Cow ghee as *Anupana*

Name of formulation	Indication	Probable mode of action	Reference
<i>Kutajavaleha</i>	<i>Arsha</i>	<i>Agnideepak</i>	V.S. Arsharogadhikar/ 357-359
<i>Vidarikandadi churna</i>	<i>Bala, Jvara and Aruchi</i>		V.S. Balaroga/135
<i>Guduchyadi churna</i>	<i>Medhya</i>	<i>Medhya</i>	Harita Samhita 54/21
<i>Bhallatakadya kshara</i>	<i>Grahani</i>	<i>Sheeta guna</i> pacifies <i>Ushnata</i> of <i>Bhallatak</i>	Ch. Chi. 15/177
<i>Saurashtradi kwath</i>	<i>Gulma</i>	Pacifies vitiated <i>Vata Dosha</i>	H.S. 4/26

Almost in all the *Avaleha*, ghee is an ingredient that increases shelf life and palatability and provides good texture and taste to *Avaleha*. Similarly, in preparation for *Vati* (tablet), one should apply ghee on the palm to prevent dryness on the surface.

Gomutra

The Cow urine contains urea, uric acid, minerals, bioactive substances, hormones, lactose sugar, vitamins A, B, C, D, and E; macro and micronutrients like nitrogen, potassium, sulphur, sodium, copper, manga-

nese, calcium, etc. It shows anticancer, antifungal and antibiotic activity. It is *Madhura* in *Rasa* (sweet in taste), the best antiseptic, good for skin diseases and *Udararoga*; it contains *Kshariya* (alkaline) properties, enhances biological fire, increases intellectual, and is helpful in *Asthapana basti* (specifically recommended in *Kaphanugata vata*), evacuates vitiated *Dosha* from the body. In various formulations, it is used as an ingredient, *Anupana* and *Bhavana dravya*; the following table enlisting same.

Gomutra as Bhavana dravya

Name of formulation	Indication	Reference
<i>Sanjeevani vati</i>	<i>Sannipataj jwara</i>	Sha. M. 7/18-21
<i>Lauha bhasma</i>	<i>Pandu roga</i> ; helps in reduction process of <i>Lauha</i> and helps in absorption.	Ch. Chi. 16/69

Gomutra as ingredient

Name of formulation	Indication	Probable mode of action	Reference
<i>Mandura vataka</i>	<i>Pandu roga</i>	Reduce <i>lauha bhasma</i> and helps in absorption	Ch. Chi. 16/75
<i>Guduchyadi tail</i>	<i>Vataja yoniyapada</i>	Pacifies vitiated <i>Vatadosha</i>	Ch. Chi. 30/60
<i>Trifalakwath + gomutra</i>	<i>Yoniprakshalana for yonistrava</i>	Antiseptic	Ch. Chi. 30/83
<i>Chatuhprasratiki basti</i>	<i>Vidsanga and anaha</i>	<i>Tikshana</i>	Ch. Si. 8/12
<i>Pashanabhedadi ghrit</i>	<i>Ashmari</i>	<i>Tikshana, kaphashamakap-roperty</i>	Ch. Chi. 26/61

Gomutra as Anupana:

Name of formulation	Indication	Probable mode of action	Reference
<i>Patraeladi churna</i>	<i>Gulma</i>	Pacifies vitiated <i>Vata dosha</i>	Ka. Khi. 9/82-83
<i>Trifaladi churna</i>	<i>Gulma</i>	Pacifies vitiated <i>Vata dosha</i>	Chakradutta 30/43-44
<i>Haridra+ gomutra</i>	<i>Kustha</i>	Antiseptic	Su. Chi. 9/45
<i>Lakshadi churna</i>	<i>Kustha</i>	Antiseptic	A.S. Chi. 21/43-44
<i>Svarna makshik or silajatu</i>	<i>Kumbhakamla</i>	Proper absorption	Su. Chi. 44/31

Gomaya

Cow dung is the undigested residue of consumed food material excreted by cows. It consists of lignin, cellulose, hemicelluloses and many minerals like sulphur, iron, copper, calcium, phosphorous, zinc, magnesium etc. It is useful as fuel, mosquito repellent, and cleansing agent. The dry cow dung cake can be used for external applica-

tion¹⁶. Because of its dry nature, it stimulates nerves. The use of *Goshakrut* (cow dung) is also recommended for *Pindasweda* (sudation) to pacify *Vata-kapha dosha*.¹⁷ While preparing *Rasa Parpati*, a cushion of cow dung is indicated. It helps to fasten the process of cooling hot material to make thin flakes. Well, some theories suggest it is rich in biliary products, which are absorbed in the making of *Parpati* and, hence, are helpful in *Pittaja vyadhis*.¹⁸

Name of formulation	Indication	Reference
<i>Prataplankeshwar Rasa</i>	<i>Sutika Roga</i>	Y.R. Sutikaroga/ 179
<i>Panchamrit parpati</i>	<i>Grahani</i>	B.R. 8/458
<i>Goshkrut rasa+ Madhu+ Sarpi</i>	<i>Raktapitta</i>	Ch. Chi. 4/68
Local application of <i>Goshkrut</i> (<i>Snana</i> and <i>Utsadana</i>)	<i>Apasmara</i>	Ch. Chi. 10/32
<i>Madhukadi Yoga</i>	<i>Hikkashwaschikitsa</i>	Ch. Chi. 17/116
<i>Sharkara+ Tamalaki+ Draksha+ Goshkrut rasa+ Guda+ Shunthi</i> for <i>Nasya</i> and for oral administration	<i>Hikkashwaschikitsa</i>	Ch. Chi. 17/130
<i>Goshkrut rasa+ Honey</i>	<i>Kayachikitsa</i>	Ch. Chi. 18/91

CONCLUSION

Panchgavya is a combination of five elements obtained from cows. Recent studies show results of *Panchgavya* in chronic sinusitis, allergic rhinitis and migraine in the form of *Nasya*. *Panchgavya Ghrut* is referred to in the case of *Apasmara* (epilepsy), *Kamla* (jaundice) and *Jwararoga*. (Ch. Chi. 10). *Panchgavya* with *Trifala* and *Chitrak* like medicine is recommended in case of *Vishama jwara* by Acharya

Sushruta. *Mahapanchgavyaghrut* combines *Panchgavya* and many more herbal drugs; this is addressed as *Amrit* (nectar) and recommended in *Apasmara*, *Unmada* (mania), *Gulma* (carcinogenic growth), *Arsha* (hemorrhoids), *Pandu* (anemia) and *Graharoga* (various psychosomatic disorders). It is an immune modulator, shows anticholinergic activity and is useful in the treatment of skin and gastrointestinal disorders. In Indian mythology and Ayurveda literature, cow products are beneficial for positive

health, pharmaceutical processes and therapeutics. The easy availability, cheapness and higher results attracted the government of India, the ministry of Science and Technology, to start a national programme for scientific validation and research on *Panchgavya* (SVAROP) by the Department of Science and Technology and CSIR in collaboration with IIT DELHI. Therapy with elements of *Panchgavya* is known as cow pathy. Hence, cow and cow products help restore nature and health. All these benefits give a proven cause why the cow is worshipped as a mother in Hindu mythology.

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