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Review Article

Benefits of Breastfeeding

Evidence based study to explore the benefits of breastfeeding and effect of Laghu Panchamool processed Cow milk compared to formula feed in infants

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Introduction: Nutritional status shows a vital role in determining the health status particularly in children. Nutritional deficiencies give rise to a number of morbidities, which in turn, may lead to increased mortality. Infants got perfect nutrition form mother breast milk due to protein, fat, vitamins, immunoglobulin and all baby essentials to develop. They all are available in a more digestible form than powdered milk. Health experts believe breastfeeding is the topmost dietetic option for infants, but it may not be an option for every woman. Decisions are based on health, lifestyle, and specific medical conditions.

Methods: This study was completed by gathering the knowledge from classical Ayurvedic literature, pediatric magazines, research articles, guidelines and PubMed and Medline database.

Results and Discussion: Currently available formula feeds have lack of immunoglobulins and do not match the complexity of breast milk. Formula feeds are more problematic on the infant's gut and may produce various diseases in future.

Conclusion: In Ayurvedic texts, Laghu Panchamoola processed cow milk is one of the best option in absence of breast milk. This formulation has Anti-helminthic, Anti-inflammatory, Anti-diarrheal, Anti-diabetic, Anti-oxidant, Anti-pyretic, Anti-tumor, Anti-asthmatic and Free radical scavenging properties along with best required nutrition.

Keywords: Breast milk, Cow milk, Formula feed, Immunity, Laghu Panchamoola, Nutrition

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Introduction

Pediatric health in developing countries differ considerably for infants who formula feed compared with those who breastfeed. Non-breastfed infants are associated with higher prevalence of infections during childhood and greater chance to develop type 1 and type 2 diabetes, obesity, leukemia.**[1]** Government policies in public awareness IEC material have conventionally described the "benefits of breastfeeding," relating consequences between infants on breastfeeding against the formula-fed infants. Most of infant's formula milk is cow's milk reformed with other elements. It is a secure, fixed mixture of substances that does not respond to the needs of the infant. Baby formula, while it contains basic nutrition, doesn't have the properties that strengthen immunity.

Infant formula feed is made up of a complex aggregation of proteins, fats, sugars and multi-nutrients. It's far made to intently replica the elements in breast milk however it could be no means in reality fit the composition due to the fact mother milk is significantly unique from one mother to the subsequent to fulfill the customized desires of every infant. Breast milk and little one formula feed incorporates the equal sorts of protein however the ratios range between the 2 alternatives. Seeing that whey protein is more effortlessly assimilated via the infant's immature digestive system, infant formulation feed has a tendency to be greater complicated on the stomach and intestines due to the elevated casein content material. These digestive problems can result in more incidences of diarrhea, flatulence and different digestive disturbances. Long-term gastrointestinal conditions including inflammatory bowel disease (IBD) and Crohn's disease (CD) are more common in formula-fed children. The idea that exclusive breastfeeding lowers the risks of CD and ulcerative colitis (UC) is supported by a meta-analysis of 17 pertinent studies.**[2]** According to a study done on 2184 kids at the Hospital for Sick Children in Toronto, formula-fed newborns had a 50% higher chance of developing asthma and wheeze than those who were nursed for at least nine months.**[3]** A necrotizing enterocolitis (NEC) outbreak in Belgium has been linked to newborn formula tainted with Enterobacter sakazakii. During the outburst, a total of 12 children acquired NEC, and two infants (twin brothers) died.**[4]**

The chance of developing a milk protein allergy is increased by early introduction to animal milk. In families with a history of insulin-dependent diabetes mellitus, it is strongly advised that breastfeeding be continued and that products containing intact cow's milk protein and commercially accessible cow's milk be avoided throughout the first year of life because of the possibility that early exposure to cow's milk proteins increases the chance of developing type 1 diabetes.

The development of an antibody response to cow's milk protein is found in the condition of consumption cow's milk and cow's milk-based newborn formula under four months of age. When compared to infants who were breastfed, those who were fed cow's milk showed higher levels of beta-casein antibodies. Researchers came to the conclusion that exclusive breastfeeding in beginning four months inhibited the generation of antibodies and may have a preventive impact against the onset of Type 1 diabetes.**[5]**

In 2003, infants in Israel who consumed the same soy-based infant formula brand were admitted to the ICU with severe encephalopathy, out of which 2 infants died from disease related with cardiovascular system. Analysis revealed that the formula's thiamine level was untraceable. When given thiamine, the soy-based formula-fed infants who were brought with symptoms suggestive of thiamine deficiency quickly recovered.**[6]**

A newborn who died at the age of 20 days after developing fever, tachycardia, reduced vascular profusions, and convulsions at the age of 11 days is described in a case report from a United State based epidemic of Enterobacter sakazakii in a NICU. The baby passed away on day 20. Spinal fluid samples were found to contain E. sakazakii cultures, which researchers were able to link to tainted powdered infant formula feed used in the NICU.**[7]**

While formula might be fairly pricey, breast milk is free. The most affordable formulas are typically ready-to-eat, while powdered formulae are typically the least expensive. Additionally more expensive than conventional preparations are specialty formulae like soy or allergic ones. Numerous studies have shown that boiling or processing cow milk can cause a range of modifications, including adjustments to the surface tension, density, amount of somatic cells, fat, and protein contents.

In a study, the fat proportion of fresh cow milk ranged from 3.30 to 5.29 [gm%], whereas boiled cow milk ranged from 3.51 to 5.16 [gm%]. Cow's fresh milk had solids not fat ranging from 9.13 to 10.24 [gm%], whereas boiled cow milk had solids not fat range from 9.41 to 10.71 [gm%]. The NSC ranged from 100.000 to 310.000 cells per millilitre for fresh cow milk and from 50.000 to 115.000 cells per millilitre for cooked cow milk.**[8]**

In higher molecular weight products, heating causes lactoglobulin to aggregate, whereas caseins appear to be almost unaffected to the treatments. The fact that lacto globulin aggregates are not immunoreactive with the sera of those who have an allergy to cow's milk proteins demonstrates how boiling changes the profile of milk proteins, slightly reducing milk allergenicity.**[9]**

According to findings of a different study, increasing heat-treatment temperature while also lengthening heat-treatment duration causes whey protein to become more denatured & create a whey protein-casein complex.**[10]** There are explicit explanations about alternative milk in Ayurvedic texts in event that mother's milk is unavailable. Cow's milk should be administered to infant after processing it with a decoction of *Laghu-Panchmoola* combined with sugar as prescribed by *Acharya Vagbhata.***[11]** During first year of life, it is preferred that *Laghu Panchamool* processed cow's milk rather than whole cow's milk be utilized if human breast milk is unavailable. In comparison to formula feed, *Laghu Panchamool* processed cow milk may offer certain benefits due to its natural composition. It includes vital nutrients for newborns' overall growth & development, including proteins, lipids, carbs, vitamins, & minerals.

Table 1: Showing components and studies of *Laghu Panchamoola Kwatha*

SN	Name	Botanical Name	Part used	Ratio/Part	Studies
1.	Shalaparni	Desmodium gangeticum	Root	1	▪ Anti-diarrheal, anti-asthmatic, anti- tubercular and beneficial in urogenital illnesses[12] ▪ Oral administer of one spoonful root extract of Shalparni twice a day, to cure whooping cough[13] ▪ It's root paste Oral administration and powdered form is used to manage typhoid and cerebrospinal meningitis[14]
2.	Prishnaparni	Uraria picta	Root	1	▪ Anti-inflammatory and free radical scavenging properties[15] ▪ Anti-microbial activity[16]
3.	Brihati	Solanum indicum	Root	1	▪ Antibacterial activity[17] ▪ Anti-ulcerogenic[18] ▪ Antioxidant and Anti helminthic activity[19]
4.	Kantakari	Solanum xanthocarpum	Root	1	▪ Useful in fever, cough, asthma etc.[20] ▪ Anti-helmintic, anti-pyretic, anti-inflammatory, anti-tumor activity[21]
5.	Gokshura	Tribulis terrestris	Root	1	▪ Immunomodulatory activity[22] ▪ Antihelminthic activity[23] ▪ Anti-diabetic activity[24]

Laghu Panchamoola Kwatha (Decoction) importance as adjuvant in managing *Pandu Roga* (Anemia) is described by *Acharya Charaka.***[25]** *Acharya Sushruta* has defined *Laghu Panchamoola* as *Pittashamana*, *Vataghna*, *Brimhana* (nourishing) and *Balavardhana* (Strenthning)**[26]** whereas *Vagbhata* points *Madhura Rasa*, *Madhura Vipaka*, *Anushna Sheeta Guna* and *Sarva Dosha Hara* properties.**[27]**

If we evaluate the properties of each of the components viz, *Shalaparni, Prishnaparni, Brihati, Kantakari* and *Gokshura*, we will get a better understanding of the action of *Laghu Panchamoola*.

- ***Rasa*** - 60% have *Madhura Rasa*, 80% have *Tikta Rasa* and 40% have *Katu Rasa*.
- ***Guna -*** 60% has *Snigdha Guna*.

- ***Veerya* -** 80% has *Ushna Veerya*.
- ***Vipaka* -** 60% has *Madhura Vipaka*.
- ***Doshaghnata* -** 40% drugs are *Tridosha Shamaka*, 40% drugs are *Kapha-Vata Shamaka* while 1 drug i.e. 20% is *Vata-Pitta Shamaka*.

Based on the above, it can be proclaimed that *Laghu Panchamoola* has a *Tridosha Shamaka* property in general and a special *Pitta Shamana* quality due to *Madura- Tikta Rasa Pradhanata* and *Madhura Vipaka*. Hence it is very much effective in all diversities of *Karshya* (Emaciation) and *Pandu Roga* on the basis of *Dosha Pratyanika* action. It's *Ushna Veerya* Property acts as *Agni Deepana*, relieves *Sroto Rodha* corrects *Dhatu Poshana Krama* whereby *Snigdha Guna* and *Madhura Vipaka* act as *Brimhana* and *Balya* thereby having specific *Roga Pratyanika* action in *Karshya* and *Pandu Roga*.

Here are some potential benefits of *Laghu Panchamool* processed cow milk compared to formula feed:

1. Nutritional composition: *Laghu Panchamool* processed cow milk contains a natural balance of proteins, fats, carbohydrates, vitamins, and minerals, which closely resemble the composition of breast milk. This can provide infants with essential nutrients necessary for their growth and development.

2. Digestibility: The herbal processing method used in *Laghu Panchamool* processed cow milk may enhance its digestibility. This can be beneficial for infants with sensitive digestive systems or those prone to digestive issues.

3. Immune support: Cow's milk, including *Laghu Panchamool* processed cow milk, contains immune-boosting components such as immunoglobulins and lactoferrin. These components can help strengthen the immune system of infants and provide protection against infections.

4. Ayurvedic benefits: *Laghu Panchamool* processed cow milk is prepared using Ayurvedic principles and the medicinal roots of *Panchamool*. These roots are known for their therapeutic properties and may provide additional health benefits to infants.

It is important to note that while *Laghu Panchamool* processed cow milk may offer certain benefits, it is not a replacement for breast milk.

Breast milk remains the optimal choice for infants whenever possible. If breastfeeding is not possible, *Laghu Panchamool* processed cow milk or formula feed can be considered under appropriate medical guidance and supervision.

Conclusion

Currently available formula feeds have lack of immunoglobulins and do not match the complexity of breast milk. Infant formula is more likely to cause future intestinal problems, as well as a variety of disorders. In ancient times, the *Acharyas* were erudite about infant nutrition. If the mother do not have enough breast milk, if the mother is ill or died than the problem of feeding the newborn by arranging *Laghu Panchamoola* processed cow milk can be solved. It is the cheapest and best option rather than the available formula feed in the market. This formulation has Anti-helminthic, Anti-inflammatory, Anti-diarrheal, Anti-diabetic, Anti-oxidant, Anti-pyretic, Anti-tumor, Anti-asthmatic and Free radical scavenging properties along with best required nutrition. During preparation of this formulation several changes occurs at protein, carbohydrates, fats as well as micronutrient level, which may be beneficial for infant better than formula feeds.

References

1. Stuebe A. The risks of not breastfeeding for mothers and infants. Rev Obstet Gynecol. 2009;2(4):222–31. *[Crossref][PubMed][Google Scholar]*

2. Klement E, Cohen RV, Boxman V, Joseph A, Reif S. Breastfeeding and risk of inflammatory bowel disease: a systematic review with meta-analysis. Am J Clin Nutr. 2004;80:1342–52. *[Crossref][PubMed][Google Scholar]*

3. Dell S, To T. Breastfeeding and asthma in young children. Arch Pediatr Adolesc Med. 2001;155:1261–5. *[Crossref][PubMed][Google Scholar]*

4. Van Acker J, de Smet F, Muyldermans G, Bougatef A, Naessens A, Lauwers S. Outbreak of necrotizing enterocolitis associated with Enterobacter sakazakii in powdered infant formulas. J Clin Microbiol. 2001;39:293–7. *[Crossref][PubMed][Google Scholar]*

5. Monetini L, Cavallo MG, Stefanini L, Ferrazzoli F, Bizzarri C, Marietti G, et al. Bovine beta-casein antibodies in breast- and bottle-fed infants: relevance in Type 1 diabetes. Horm Metab Res. 2002;34:455–9. *[Crossref][PubMed][Google Scholar]*

6. Fattal-Valevski A, Kesler A, Seal B, Nitzan-Kaluski D, Rotstein M, Mesterman R, et al. Outbreak of life-threatening thiamine deficiency in infants in Israel caused by defective soy-based formula. Pediatrics. 2005;115:223–8. *[Crossref][PubMed][Google Scholar]*

7. Weir E. Powdered infant formula and fatal infection with Enterobacter sakazakii. CMAJ. 2002;166. *[Crossref][PubMed][Google Scholar]*

8. Ostan M, Creţescu I, et al. Studies regarding the effect of boiling on cow milk quality with analysis of some physico-chemical characteristics and the somatic cell count. Res J Agric Sci. 2016;48(2). *[Crossref][PubMed][Google Scholar]*

9. Lamberti C, Baro C, et al. Effects of two different domestic boiling practices on the allergenicity of cow's milk proteins. J Sci Food Agric. 2018;98(6):2370–7. *[Article][Crossref][PubMed][Google Scholar]*

10. Curlej J, Zajác P, Capla J, Golian J, Benešová L, Partika A, et al. The effect of heat treatment on cow's milk protein profiles. Foods. 2022;11:1023. *[Article][Crossref][PubMed][Google Scholar]*

11. Tripathi B. Astanga Hrdayam of Srimadvagbhata. Uttaratantra Chapter 1, Verse 20. Chaukhamba Sanskrit Pratishthan; 2009. *[Crossref][PubMed][Google Scholar]*

12. Trivedi PC. Medicinal plants: Ethnobotanical approach. Jodhpur: Agrobios (India); 2006. p. *278 [Crossref][PubMed][Google Scholar]*

13. Ravi PRB, Sunitha S. Medicinal plant resources of Rudrakod Sacred Grove in Nallamalais, Andhra Pradesh, India. J Biodivers. 2011;2(2):75–89. *[Crossref][PubMed][Google Scholar]*

14. Richa SC. Taxa of family Fabaceae: potential medicinal value in Vindhya region, Uttar Pradesh, India. Int J Pharm Bio Sci. 2010;1(4):B46–53. *[Crossref][PubMed][Google Scholar]*

15. Ahirrao P, Jagtap A, Shirke S, Farnandes B. Comparative evaluation of aqueous and methanolic extracts of roots of Asparagus racemosus and whole plants of Uraria picta. Life Sci. 2007;108. *[Crossref][PubMed][Google Scholar]*

16. Rahman MM, Gibbons S, Gray AI. Isoflavanones from Uraria picta and their antimicrobial activity. Phytochemistry. 2007;68:1692–7. *[Crossref][PubMed][Google Scholar]*

17. Gavimath CC, Kulkarni SM, Raorane CJ, Gavade BG, Kalsekar DP, Ravishankar BE, et al. Antibacterial potentials of Solanum indicum Linn, Solanum xanthocarpum and Physalis minima. Int J Pharm Appl. 2012;3(4):414–8. *[Crossref][PubMed][Google Scholar]*

18. Abeer YI, Nermeen MS. Protective effect of Solanum indicum var. distichum extract on experimentally induced gastric ulcers in rats. Glob J Pharmacol. *2013;7(3):325–32 [Crossref][PubMed][Google Scholar]*

19. Deb PK, Das N, Bhakta RGT. Evaluation of in-vitro antioxidant and anthelmintic activity of Solanum indicum Linn. berries. Indo Am J Pharm Res. *2013;3(2):4123–30 [Crossref][PubMed][Google Scholar]*

20. Nadkarni KM. Indian Materia Medica. Vol I. 3rd ed. *Mumbai: Popular Publication; 2009. p. 1156–8 [Crossref][PubMed][Google Scholar]*

21. Gupta MP, Dutt S. Chemical examination of the seeds of Solanum xanthocarpum. II. Constituents. *J Indian Chem Soc. 1938;15:95–100 [Crossref][PubMed][Google Scholar]*

22. Tilwari A, Shukla NP, Devi U. Effect of five medicinal plants used in Indian system of medicines on immune function in Wistar rats. Afr J Biotechnol. 2011;10:16637–45. *[Crossref][PubMed][Google Scholar]*

23. Kiran B, Lalitha V, Raveesha KA. In vitro evaluation of aqueous and solvent extracts of Tribulus terrestris L. leaf against human bacteria. Int J Pharm Tech Res. *2011;3:1897–903 [Crossref][PubMed][Google Scholar]*

24. Tribulosin and β-sitosterol-D-glucoside: the anthelmintic principles of Tribulus terrestris. Phytomedicine. 2002;9:753–6. . *[Crossref][PubMed][Google Scholar]*

25. Li M, Qu W, Chu S, Wang H, Tian C, Tu M. Effect of the decoction of Tribulus terrestris on mice gluconeogenesis. Zhong Yao Cai. 2001;24:586–8. *[Crossref][PubMed][Google Scholar]*

26. The protective effect of Tribulus terrestris in diabetes. Ann N Y Acad Sci. 2006;1084:391–401. . *[Crossref][PubMed][Google Scholar]*

27. Agnivesha. Charaka Samhita. Vidyotini Hindi commentary by Sastri K, Chaturvedi G. 22nd ed. *Varanasi: Chowkhamba Bharati Academy; 1993. Chikitsa Sthana 16/114. p. 504 [Crossref][PubMed] [Google Scholar]*

28. Sushruta M. Sushruta Samhita, Purvardha. Hindi commentary by Shastri A. 11th ed. *Varanasi: Chaukhambha Sanskrit Sansthan; Sutra Sthana 38/67,68. p. 146 [Crossref][PubMed][Google Scholar]*

29. Vagbhata. Ashtanga Hrudayam. Hindi translation by Vaidya L. New Delhi: Motilal Banarasidas; reprint 1977. *Sutra Sthana 6/166–157. p. 59 [Crossref][PubMed][Google Scholar]*