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EXPLORING THE FUNCTIONAL INTERACTION OF JAGGERY IN PEANUT-INDUCED TOXICITY AND ALLERGENICITY: A SIDDHA PERSPECTIVE WITH SUPPORTING MODERN EVIDENCE

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ABSTRACT

Traditional dietary systems such as Siddha medicine emphasize specific food combinations that are believed to enhance health and mitigate food related adverse effects. One such culturally significant pairing is peanuts and jaggery, widely consumed in South Asia as an energy dense functional food. The objective of this study was to assess the scientific rationale behind this combination and to explore its potential roles in metabolic modulation, toxicity reduction, and allergenicity. This narrative review evaluates the traditional Siddha recommendation of combining peanuts (*Arachis hypogaea*) and jaggery Primarily made from Sugarcane (*Saccharum officinarum*) using integrative evidence from Siddha literature and modern nutritional science. The data collected through Siddha classical texts, scientific databases including PubMed, Scopus, and Google Scholar. Evidence on peanut and jaggery composition, food - food interactions, allergenicity, and aflatoxin toxicity was analyzed. Findings indicate that peanuts are rich in high quality protein, essential fatty acids, and bioactive antioxidant compounds, whereas jaggery provides carbohydrates, trace minerals, and phenolic antioxidants. Siddha texts describe this combinations were functioning in an antidote and balancing role by strengthening digestive fire (*Agni*) and reducing toxic metabolic by products (*Amam*). Modern evidence suggests possible synergistic effects, including improved glycemic control due to peanut macronutrients and a theoretical reduction in allergenic potential through protein polyphenol interactions. Jaggery's antioxidant properties may also help mitigate oxidative stress associated with aflatoxin exposure. However, peanuts remain associated with risks such as IgE-mediated allergy and aflatoxin contamination, while excessive jaggery intake may contribute to glycemic load and metabolic stress. According to *Nanju Murivu Nool*, excessive peanut consumption may cause gastrointestinal and systemic symptoms, which are traditionally managed using jaggery as an antidotal remedy to restore humoral balance. The peanut jaggery combination demonstrates plausible nutritional and metabolic synergy with partially supportive biochemical mechanisms. However, its proposed antidote effects on allergenicity and toxicity remain largely theoretical and require further experimental and clinical validation.

KEYWORDS: *Siddha medicine, peanut, jaggery, antidote, food synergy, allergenicity, functional food, Toxicology.*

1. INTRODUCTION

Siddha Medicine one of the ancient health care system which explained and practice numerus beneficial fact to the human being. One of the Siddha medicine views diet as a fundamental aspect of health, where the combination of foods directly impacts the balance of the *Muththosam* (Three humors -*Vatham*, *Piththam*, and *Kapam*) and the digestive fire known as *Agni* (Pandian *et al*, 2013). A classic examples are, pairing lemon with green leafy vegetables increases iron absorption, while adding black pepper to turmeric-based foods can boost the bioavailability of curcumin by 1,000 times (Natarajan T D et al, 2019) and maximize the absorption of antioxidants like Epigallocatechin gallate

(EGCG)(Joshua D et al, 2004) These interactions are crucial for combating nutritional deficiencies and reducing the risk of chronic conditions, including cardiovascular disease, diabetes, and certain cancers.(Chung Yen Chen et al, 2005).

The dietary combinations have been developed over generations based on Traditional and cultural knowledge, nutritional value, and therapeutic benefits, playing an important role in promoting human health and wellbeing (Mihiranie S et al, 2020; Ghosh S, 2020). Furthermore, combine food can produce synergistic and antagonistic activity in to the human body. synergistic interactions between combined foods may enhance nutrient availability, enhancement of bioavailability (Saad B & Mona O, 2013) and functional properties beyond individual components as a beneficial effect as well as assist the body in absorbing and utilizing nutrients from another (Natarajan T D, 2019: Mihiranie S et al, 2020) and antagonistic interaction of food inhibits the absorption or biological effectiveness of another, thereby reducing overall nutritional benefit (Gibson RS, 2005) and it may causing harmful effects to the body. Still combine food practicing in day today life from the ancient time via modern and traditional health care systems.

The combination of food not only enhance the bioavailability and absorption, but it can remove the toxic effect from another, and remove the toxic metabolite from the body as well. Further combine food can act as antidote for another's harmful substance. For an example, Consuming of ghee with milk can prevent the indigestion and act as antidote, coconut consumption with raw rice or Jaggary act as antidote, boiled egg with radish juice more suitable pair of food as antidote combination and peanut can eat with Jaggary (Pon. Kurusironmani, 1971) Furthermore, traditional combinations often provide complete nutrition meal level rather than as isolated nutrients is more relevant for understanding the complex synergies that occur during digestion and metabolism (Natarajan T D et al,2019). Still, now combine food practice in differently, such as Peanuts and legumes are often eaten with cereal grains because the proteins in grains provide sulfur containing amino acids (methionine and cysteine) that are lower in legumes, creating a more complete amino acid profile (Young C.T, 1980: Stringfellow A.C et al, 1978, Batal A, et al, 2005).

1.1 Research Question

What is the rationale behind the Siddha recommendation of combining jaggery with peanut, and what are the beneficial effects of this combination?

2. Research Methodology

This study was designed as a narrative literature review with integrative evidence synthesis to examine the potential interaction between jaggery and peanut-induced toxicity and allergenicity by integrating traditional Siddha knowledge with contemporary toxicological evidence.

The conceptual framework was based on Siddha principles, in which jaggery is traditionally described as possessing antidote (detoxifying) properties (Uthamarayan, 2006; Thiyagarajan, 2009). In contrast, peanut consumption is associated with biological effects including allergenic protein activity, aflatoxin exposure, oxidative stress, and immune-mediated inflammatory responses, which may contribute to allergic reactions and toxic manifestations (Sicherer et al., 2007; Gupta, 2013; Liener, 2013). This review integrates these traditional concepts with current scientific evidence to evaluate their potential relevance from a toxicological perspective.

The literature search was conducted using PubMed/MEDLINE, Scopus, Web of Science, ScienceDirect, Google Scholar, and CrossRef to identify relevant publications published between 2000 and June 2026**.** Primary information was obtained from Siddha classical texts, including *Nanju Murivu Nool*, *Vishapirathi Vishathiraddu*, *Agasthiyar Gunavagadam*, *Theraiyar Yemaga Venba*, and *Siddha Materia Medica*. Secondary information was collected from peer-reviewed scientific articles, review papers, official guidelines, and publications from recognized organizations such as the Food and Agriculture Organization (FAO): Codex Alimentarius Commission (FAO/WHO): the National Institute of Allergy and Infectious Diseases (NIAID): and the Ministry of Ayush.

The search strategy employed combinations of keywords and Boolean operators, including "peanut" or "Arachis hypogaea"**,** "peanut allergy"**,** "food allergenicity"**,** "food toxicity"**,** "aflatoxin"**,** "mycotoxin"**,** "oxidative stress"**,** "immune response"**,** "inflammation"**,** "jaggery"**,** "palmyrah jaggery"**,** "kithul jaggery"**,** "bioactive compounds"**,** "polyphenols"**,** "functional foods"**,** "Siddha medicine"**, and** "traditional medicine"**.** Peer-reviewed original research articles, review articles, clinical studies, experimental studies, in vitro investigations, authoritative books, and official reports published in English were included. Classical Siddha literature relevant to food compatibility, detoxification, and dietary practices was also considered.

The selected literature was critically appraised for scientific quality, methodological rigor, relevance to peanut-induced toxicity and allergenicity, evidence regarding the phytochemical and biological properties of jaggery, and consistency with Siddha principles. The evidence was then narratively synthesized to identify current knowledge, potential mechanisms, research gaps, and future directions for experimental and clinical investigations.

3. RESULTS AND DISCUSSION

This review discusses the Siddha practice of combining jaggery with peanut as a possible strategy to reduce adverse effects linked to peanut consumption. Siddha texts emphasize the concept of food compatibility in minimizing harmful effects of certain foods. Modern studies suggest that peanuts may trigger allergic reactions and oxidative stress, while jaggery has antioxidant and immunomodulatory properties that may offer protection. From the perspective of Siddha medicine and the peanut jaggery combination, it is stated that according to *Nanju Murivu Nool*, peanuts (referred to as *Ver Kadalai* and Nilakadalai in Tamil) are described as producing toxic effects when consumed in excess. Such overconsumption is associated with clinical manifestations including vomiting, dizziness, excessive salivation, diarrhoea, altered taste perception, and increased thirst, which are interpreted in Siddha medicine as a result of aggravated *Piththa thosham*. The text further indicates that these adverse effects may be mitigated through the intake of sugarcane juice or jaggery, which are considered to possess antidotal properties that help restore humoral balance and alleviate the toxic symptoms associated with excessive peanut consumption (Kurusironmani Pon, 1973).

3.1 Traditional dietary combination of Peanuts and Jaggery

The combination of peanuts and jaggery is a traditional dietary staple, most notably in India, where it is widely used to create nutrient dense snacks and therapeutic preparations (ICMR., 2017) such as "*chikki*", a type of sweet bar or brittle and "*laddu*", which are homemade peanut jaggery balls, While the sources focus heavily on Indian preparations, they note that peanut bars are eaten in various forms all around the globe.

Scientific and food technology literature confirms that peanut-based sweets frequently use jaggery as a natural sweetening and binding agent, forming nutritionally rich traditional foods consumed across India and other regions of South Asia (R C, Sunkireddy YR, 2011).

In South Asia, peanut-based confections prepared with jaggery are widely recognized as traditional energy-dense foods, particularly in the form of sweets such as *kadalai mittai*, *chikki*, *laddu*, and brittle-type preparations where jaggery acts as the primary natural sweetening and binding agent. While peanut–sugar combinations are also commonly used in commercial confectionery products, peanut–jaggery preparations remain more culturally prominent in household and festival-based traditional diets, reflecting long-standing indigenous food practices. Food science literature confirms that peanuts are frequently paired with sweetening agents to enhance palatability and energy value, while regional food studies highlight jaggery as a characteristic unrefined sweetener in South Asian traditional confectionery systems (Hartel et al., 2018; FAO, 2019; Codex Alimentarius, 2021).

In Sri Lanka, jaggery is widely used as a natural sweetener in traditional and festive food preparations. Indigenous varieties such as kithul jaggery (*Caryota urens*) (Sri Lanka Export Development Board, 2025): Palmyrah jaggery and coconut jaggery are commonly utilized in different regions of the country. Kithul jaggery is particularly valued throughout Sri Lanka, whereas palmyrah jaggery holds cultural significance in the Northern Province, where palmyrah palms are abundant (Palmyrah Development Board of Sri Lanka, 2020). Circumstantial evidence and regional culinary practices suggest that roasted peanuts may be consumed together with jaggery as a simple energy rich snack (*Kachchan Thaddu).*

In addition, Peanut sugar combinations are widely utilized in confectionery products across the USA, Europe, and Latin America, reflecting a global practice of producing energy-dense sweet foods (FAO/WHO; 2021: Washington DC; 2020). In Western countries, peanut brittle is a well established confection prepared by cooking peanuts in caramelized sugar syrup to form a hard, crunchy product, where sugar serves as the primary binding and sweetening agent Peanut brittle (Olver, 2020; Hartel et al., 2018). In Latin America, particularly Mexico, candied peanuts (*cacahuate garapiñado*) are produced by coating peanuts in heated sugar syrup that crystallizes around the nuts and are commonly consumed as street and festive foods (Martínez, 2019; Larousse Cocina, 2023). In Brazil, peanut-based sweets such as *paçoca* combine peanuts and sugar to produce compact, energy-rich confections (Almeida & Chang, 2012; Smith, 2020). In the United States, various forms of peanut candies and peanut squares are manufactured in both industrial and artisanal forms, typically combining peanuts with sugar or corn syrup and used in snack bars and dessert products (Hartel et al., 2018; USDA, 2024). Across different parts of the world, peanuts are commonly combined with sweeteners such as sugar or syrup in a wide range of traditional and commercial confectionery products, showing that this pairing is well established globally in food systems (Hartel et al., 2018; Codex Alimentarius, 2021).

However, the use of jaggery as the primary sweetening agent in peanut-based preparations is largely limited to South Asian traditional dietary practices, where it remains culturally and regionally specific (FAO, 2019).

3.2 Nutritional value of the peanut and Jaggery

Peanuts (Arachis hypogaea L.) known as an energy-dense functional food, and composed of approximately 22–30% protein and 36–60% lipids. They provide all 20 amino acids, with arginine being the most abundant (Melo et al., 2025). Their fat profile is predominantly heart-healthy, consisting of monounsaturated (MUFA) and polyunsaturated fatty acids (PUFA)(Gangadhara & Nadaf, 2016). They are also rich in Vitamin E (tocopherols): a potent fat-soluble antioxidant that protects cell membranes from oxidative stress, B-complex vitamins (niacin (B3): thiamine (B1): riboflavin (B2): folate (B9): B6 and pantothenic acid).

Niacin and folate are particularly critical for brain health and fetal development, and essential minerals like magnesium, potassium, phosphorus, iron, zinc, copper, selenium, and manganese (Ortiz & Martirosyan, 2024). This high protein content supports satiety, muscle buildup, and is a vital nutritional tool for combating malnourishment (Melo et al., 2025). Approximately 80% of peanut oil consists of oleic acid (monounsaturated) and linoleic acid (polyunsaturated). Regular consumption of these fats is linked to improved lipid profiles, characterized by lower LDL ("bad") cholesterol and reduced risk of cardiovascular disease, type II diabetes, gallstones, and age-related cognitive decline (Melo et al., 2025).

Jaggery (unrefined cane sugar) is primarily composed of simple carbohydrates among that Approximately 85%–90% of its weight is sugar, predominantly sucrose, no fat and only trace amounts of protein (approx. 0.2%) and It provides approximately 383 kcal per 100g energy (Lamdande et al., 2018). Retains essential minerals such as iron content (~11–12 mg per 100g): which can support blood formation and help manage anemia, calcium (~9 mg): magnesium, potassium, and phosphorus (~4 mg) (Arya et al., 2016). It contains antioxidant phenolic compounds, it has a mineral (ash) content of approximately 0.3%–0.6% (Lamdande et al., 2018).

3.3 Bioactive Phytochemicals of peanut

Peanuts contain Phytosterols, specifically *β*-sitosterol, these are structurally similar to cholesterol and compete for absorption in the gut, effectively lowering blood cholesterol levels and offering potential antitumor properties. Second Resveratrol, this bioactive polyphenol, also found in grapes, has been shown to fight inflammation, protect the cardiovascular system, and potentially inhibit cancer growth. third Phenolic Acids and Flavonoids, Compounds such as p-coumaric acid, caffeic acid, and quercetin serve as antioxidants that neutralize free radicals and reduce oxidative stress. Finally, Co-enzyme Q10, identified as a dietary source of this compound, which supports cellular energy production (Wang et al., 2018).

Jaggery contains bioactive phytochemicals, primarily in the form of antioxidant phenolic compounds, these phytochemicals contribute to its antioxidant capacity, helping to neutralize free radicals and reduce oxidative stress in the body (Lamdande et al., 2018). Mineral Phytochemical Synergy: While often classified as micronutrients, the minerals in jaggery (such as iron, calcium, and potassium) work alongside its phenolic content to provide a more complex nutritional profile than standard table sugar. jaggery has a high Glycemic Index (GI ≈ 84): its bioactive components are traditionally valued in Siddha medicine for detoxification and blood purification (Ministry of Ayush, 2025).

3.4 Toxicological risk related with Peanut consumption

The toxicological risks associated with peanut consumption present a dual burden potent allergenicity, which is the primary concern in Western nations, and aflatoxin contamination, which poses severe health risks in South Asian and other developing regions (Melo et al., 2025)

In the consideration of aflatoxin contamination which show, in warm, humid climates, peanuts are highly susceptible to contamination by *Aspergillus* fungi (predominantly *A. flavus* and *A. parasiticus*): which produce secondary metabolites known as aflatoxins (Melo et al., 2025). Among this Aflatoxin B1 (AFB1) is the most toxic type and is classified by the International Agency for Research on Cancer (IARC) as a Group 1 human carcinogen (Ostry et al., 2017). It is considered the most potent hepatocarcinogen known (Barsouk et al., 2021) due to ingested aflatoxins are processed in the liver by Cytochrome P450 enzymes. This biotransformation produces a reactive intermediate (8,9-epoxide) that binds to DNA, leading to mutations that can trigger hepatocellular carcinoma (liver cancer) (Sultana et al., 2024) Acute Aflatoxicosis manifests as vomiting, abdominal pain, and acute liver failure (Ciftci & Suna, 2022) Even low levels of contamination can lead to stunted growth in children, permanent immune suppression, and increased progression of diseases like HIV to AIDS (Masaka et al., 2022).

The specific concern on peanut induced food allergies, In contrast to the toxin-heavy focus in developing regions, Western nations prioritize the management of IgE-mediated peanut allergies, which affect approximately 1%–2% of the general population (Lieberman et al., 2020). Peanuts contain 17 identified allergenic proteins (Ara h 1 through Ara h 17) (Toomer, 2017). These proteins are particularly dangerous because they are heat-stable, acid-resistant, and digestive-enzyme resistant, allowing them to reach the intestinal lining intact (Gupta & Sood, 2026). Ara h 2 is recognized as the most potent among them (Lew & Lim, 2016) and also the immune system of a sensitized individual produces specific IgE antibodies that attach to mast cells (National Institute of Allergy and Infectious Diseases [NIAID], 2012). Subsequent exposure triggers a massive release of histamine and other inflammatory mediators (Gupta & Sood, 2026) from this the health harm which mean anaphylaxix reaction range range from mild hives to life-threatening anaphylaxis, characterized by throat tightening, difficulty breathing, a sudden drop in blood pressure, and shock (National Institute of Allergy and Infectious Diseases [NIAID], 2012). Unlike many childhood allergies, peanut allergy rarely resolves and persists into adulthood for 75%–80% of individuals (Lieberman et al., 2020).

Beyond mycotoxins and allergens some factors introduce other harms such as Heavy metal contamination In regions like China, peanuts can accumulate high levels of arsenic, lead, and cadmium from contaminated soil, posing additional long-term health risks(Li et al., 2025) second High-temperature processing of peanut oil can generate harmful substances such as Benzo[a]pyrene (BaP): a known carcinogen, and trans-fatty acids (TFAs): which increase risks of cardiovascular disease and diabetes(Ni et al., 2025).

One theory for the regional disparity suggests that preparation methods matter; in South Asia, peanuts are often boiled or fried (which may lower allergenicity): whereas Western diets favor dry roasting, which can increase the allergenic potency of the proteins (Mishra & Rashmi, 2022).

Jaggery is a sucrose-rich sweetener (about 85%–90%) with a high glycemic index (~84): which can rapidly increase blood glucose and insulin levels. Frequent or excessive consumption may contribute to metabolic stress, weight gain, and a higher risk of obesity, especially in susceptible individuals (Lamdande & Khabeer, 2018). It may also negatively affect gut health by reducing microbial diversity and promoting dysbiosis and intestinal permeability (Nguyen et al., 2024).

Based on Siddha concept jaggery is classified as Guru (heavy): Madhura (sweet): and Ushna (heating) in potency. While it pacifies Vatham excessive consumption can aggravate Kapham (causing heaviness and mucus) and Pitta (increasing internal heat).Improper preparation, such as using "new" rather than well-aged jaggery, or consuming it in incompatible pairings (*apathiyam*): can weaken the digestive fire (Agni) and lead to the formation of Ama (toxic metabolic waste)(Pandian et al., 2013).Although it acts as a mild laxative through an osmotic effect, overconsumption can cause gastrointestinal heaviness or indigestion(Merck Manual, 2024; StatPearls, 2024).

3.5 Combination of peanut and jaggery

According to Siddha medicine and contemporary biochemical analysis, the combination of peanuts and jaggery creates a "nutrient synergy" that manages metabolic stress, balances bodily humors, and potentially modulates the inherent risks associated with peanuts, such as allergenicity and toxicity (Melo et al., 2025). The “toxic” metabolic effect of jaggery in modern nutritional contexts is primarily related to its high glycemic index (GI ≈ 84): which can trigger rapid postprandial glucose elevation and an exaggerated insulin response (Foster-Powell et al., 2002). However, when jaggery is consumed with peanuts, the presence of dietary fiber, protein, and healthy fats in peanuts slows gastric emptying and carbohydrate absorption, thereby reducing the rate of glucose release and blunting postprandial glycemic spikes, which may help stabilize metabolic response (Lamdande & Khabeer, 2018; Nguyen et al., 2024).

Both peanuts and jaggery contain bioactive antioxidant compounds that may contribute to health protection. Peanuts are rich in phenolic compounds, including resveratrol and other antioxidants, while jaggery retains natural phenolics that are largely absent in refined sugar (Mishra & Rashmi, 2022). These phytochemicals may help neutralize free radicals and reduce oxidative stress, which is associated with the development of chronic diseases (Melo et al., 2025). As a result, their combined intake may provide complementary antioxidant effects compared to refined sugar consumption (Lamdande & Khabeer, 2018).

In Siddha medical theory, improper food combinations are believed to generate “Ama,” a toxic metabolic residue resulting from impaired digestion. Within this framework, compatible dietary combinations (*pathiyam*) are considered to support digestive fire (*Agni)* and prevent toxin accumulation. The combination of peanuts and jaggery is traditionally regarded as a supportive or balancing food pairing that may enhance digestion and reduce the formation of Ama-like metabolic disturbances (Pandian et al., 2013; Ask Ayurveda, n.d.)

Protein–polyphenol interactions are important in food biochemistry because they can modify protein structure, digestibility, and potential allergenicity. Studies show that plant phenolic compounds can bind with peanut proteins to form protein–polyphenol complexes, which are often less digestible and may mask or reduce the exposure of IgE-binding sites responsible for allergic reactions (Ozdal et al., 2013; Rawel & Rohn, 2010). This interaction can potentially lower the allergenic response by decreasing the immune system’s recognition of peanut protein epitopes. Jaggery, being less refined than white sugar, contains small amounts of natural phenolic compounds that contribute antioxidant activity and may theoretically participate in such protein–phenolic interactions. Therefore, from a biochemical perspective, the combination of peanuts and jaggery may influence protein behavior through phenolic binding mechanisms, which could potentially modulate allergenicity, although direct clinical evidence for this specific food pairing is still limited (Lamdande & Khabeer, 2018; Ozdal et al., 2013).

Peanuts are highly susceptible to contamination by aflatoxins, However, traditional and modern processing methods such as roasting and boiling have been shown to significantly reduce fungal load, microbial contamination, and overall aflatoxin levels in peanuts. Thermal processing not only decreases surface contamination but can also partially degrade toxin concentration, thereby improving safety before consumption or further food preparation (Melo et al., 2025; Ni et al., 2025). Therefore, when peanuts are properly processed prior to combination with jaggery, the potential risk of aflatoxin exposure is reduced, making the food pairing safer from a toxicological perspective.

In Siddha and Ayurvedic systems, jaggery is traditionally used along with peanuts to balance their "heavy" (Guru) nature and to support digestion. Jaggery is considered a mild natural laxative that helps improve bowel movement and digestion through an osmotic effect, which may reduce constipation or gastrointestinal heaviness sometimes associated with excessive peanut intake (Ask Ayurveda, n.d.). In traditional humoral theory, both peanuts and jaggery are described as having "sweet" and nourishing properties, and their combination is believed to help balance *Vāta,* which is associated with dryness and coldness in the body (Pandian et al., 2013). This food combination is also used as a strengthening tonic (*rasāyana*): especially for pregnant women and children, as it is believed to support blood formation and provide energy. Additionally, Siddha–Ayurveda concepts describe jaggery as a "carrier" (*yōgavāhi*): meaning it may help improve the absorption and utilization of nutrients such as protein and minerals present in peanuts, thereby enhancing their nutritional value in the body (Pandian et al., 2013; Ask Ayurveda, n.d.).

3.6 Critical safety note on allergies

Despite these synergistic benefits, the sources are explicit that for individuals with a diagnosed peanut allergy, absolute avoidance is mandatory. Peanut allergens (Ara h proteins) are notably heat-stable and acid-resistant, meaning they can survive traditional preparation methods and trigger life-threatening anaphylaxis. The "antidotal" effects described are largely preventive and metabolic, rather than a cure for established peanut hypersensitivity

4. CONCLUSION

This narrative review evaluates the traditional peanut–jaggery combination through Siddha concepts and modern nutritional science with aims to explore the antidote potential of jaggery in peanut-induced toxicity and allergenicity. The pairing is widely consumed in South Asian dietary culture as an energy-dense functional food, where peanuts contribute high-quality protein, healthy fats, vitamins, minerals, and antioxidant bioactive compounds, while jaggery provides simple carbohydrates, iron, trace minerals, and phenolic antioxidants, together forming a nutritionally complementary system. In Siddha medicine, this combination is described under the concept of *pathiyam*, a beneficial food pairing considered to act in an antidote and balancing manner by supporting digestion and physiological harmony. Modern interpretations suggest potential nutrient synergy, including a theoretical reduction in allergenic potential through protein–polyphenol interactions that may partially mask IgE-binding sites, although this has not been clinically confirmed. Siddha literature further describes jaggery as a digestive tonic that strengthens *Agni* and reduces *Ama* (toxic metabolic by-products): while its antioxidant components may help reduce oxidative stress and support detoxification pathways. Conversely, peanuts may moderate the metabolic impact of jaggery by slowing carbohydrate absorption through their fiber, fat, and protein content, thereby reducing rapid postprandial glucose spikes and providing a metabolic buffering effect. Overall, the peanut–jaggery combination demonstrates plausible nutritional and metabolic synergy with partial biochemical support, but its proposed roles in detoxification and allergy modulation remain largely theoretical and require further rigorous clinical and experimental validation.

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