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Review Article

Jackfruit-Derived Fermentation Bioactive for Topical Dermatological Applications: Emerging Evidence, Therapeutic Potential, and Future Perspectives

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*Jackfruit (*Artocarpus heterophyllus* Lam.) is the largest tree-borne fruit in the world and is an important food crop in South and Southeast Asia. In recent years, it has gained considerable attention as a functional food and potential meat substitute because of its diverse nutritional and phytochemical compositions. This review summarizes the available evidence on the bioactive constituents, nutritional properties, and biological activities of different parts of jackfruit, including the pulp, seeds, leaves, bark, and peels. Jackfruit contains several bioactive compounds, including polyphenols, carotenoids, flavonoids, polysaccharides, and jacalin. These constituents have demonstrated antioxidant, antimicrobial, anti-inflammatory, antiviral, and anticancer activities in various studies. However, evidence for antiviral and anticancer effects is predominantly based on in vitro studies, while comparatively limited evidence is available from animal and human studies. Jackfruit pulp and seeds are widely used as food ingredients and may serve as meat substitutes in the diet. Allergic reactions have been reported, particularly in individuals with latex allergies. Overall, jackfruit represents a promising source of bioactive phytochemicals and functional food ingredients; however, further well-designed human studies are required to establish their bioavailability, effective dosage, clinical benefits, and long-term safety.*

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1.Introduction:

The tropical tree crop jackfruit is a member of the Moraceae family and is cultivated in the tropical climates of South and Southeast Asia, portions of Africa, the Caribbean, and Latin America, as well as on a smaller scale in Florida and Northern Australia. It is believed to be native to the rainforests of the Western Ghats in India. All anatomical parts of the plant, including the pulp, seeds, rind, rag (fibrous perianth tissue), leaves, bark, and roots, have an established history as either a source of food or a means of therapy in regions where it is native. A single fruit can weigh tens of kilos, making it the largest tree-borne fruit globally. During a part of the twentieth century, because it was easy to obtain and not very expensive, the fruit was considered a basic food for people who did not have much money, especially in some Indian areas. This idea has changed significantly over the past decade. Because it is fibrous and can be pulled apart, unripe jackfruit has become a popular food that people use instead of meat in vegetarian cooking. Its growing use has occurred simultaneously with, and may have helped cause, more research into the chemicals and possible medicines found in the other parts of the fruit. Phytochemical evidence supports the scientific view that jackfruit is more than just a traditional food staple. The plant contains a diverse range of bioactive compounds, including flavonoids, Artocarpus-specific prenylated flavonoids, carotenoids, phenolic acids, sterols, saponins, and the well-known jacalin lectin, particularly in its seeds [1]. Long before the phytochemistry of jackfruit was extensively investigated, traditional medical systems in South Asia used different parts of the plant for various therapeutic purposes. Jackfruit leaf decoctions have traditionally been used to manage diabetes, while the rind and other plant materials have been employed for wound care and the treatment of gastrointestinal and dermatological disorders. A substantial preclinical pharmacological evidence base, particularly from research conducted in Sri Lanka, India, and more recently, in China and Mexico, has provided plausible mechanisms that may support several of these traditional applications. Emerging experimental evidence suggests that jackfruit-derived phytochemicals possess antioxidant, anti-inflammatory, antimicrobial, antidiabetic, and other pharmacological properties. However, clinical evidence remains comparatively limited, and further well-designed human studies are required to establish the therapeutic relevance, effective doses, bioavailability, and long-term safety of these compounds, particularly in conditions such as type 2 diabetes. A careful synthesis that balances the strength of the available evidence with its significant limitations remains lacking. Cross-study comparisons are challenging because a large proportion of the pharmacological literature on jackfruit is based on crude-extract studies conducted in experimental animals, with

considerable variations in extraction solvents, doses, experimental models, and outcome measures. Human evidence is particularly limited for the anticancer, antiviral, and immunomodulatory claims that predominate in in vitro and cell culture studies, while available clinical investigations have largely focused on small studies involving jackfruit leaf preparations or seed and pulp flour in diabetes. To address these limitations, this review summarizes the nutritional and phytochemical profiles of jackfruit, critically evaluates the evidence supporting its major reported therapeutic activities, examines its emerging applications in food technology and functional food development, and identifies key evidentiary gaps that must be addressed before traditional uses can be translated into evidence-based clinical recommendations. This review draws on relevant previous reviews as well as primary clinical and preclinical studies to provide an integrated assessment of the current evidence.

2. Nutritional And Phytochemical Composition

Green (unripe) and ripe jackfruit are used for different culinary and nutritional purposes and have therefore been investigated separately. The nutritional composition of jackfruit changes substantially during ripening, which may influence its potential health effects. Ripe jackfruit contains approximately 20 g of sugar per 100 g of edible portion and provides vitamin C, provitamin A carotenoids, and several B-group vitamins, including folate. In contrast, young unripe jackfruit is relatively low in sugar and contains higher proportions of starch and dietary fiber. Because of these characteristics, unripe jackfruit has been explored as a rice or wheat substitute, particularly in dietary approaches for diabetes in South Asia. Unripe jackfruit also provides minerals such as potassium and magnesium, along with smaller amounts of calcium and iron. However, the mineral composition can vary considerably depending on the cultivar, maturity stage, and anatomical part of the fruit, including the pulp, seeds, peel, and core. These variations should be considered when comparing the nutritional and potential functional properties of different forms of jackfruit. Jackfruit pulp is notable for its relatively high protein, calcium, iron, and vitamin content per unit weight compared to other tropical fruits, such as bananas, mangoes, and pineapples.

The genus *Artocarpus* is characterized by a diverse range of prenylated flavonoids, and jackfruit contains compounds such as artocarpin, cycloartocarpin, artocarpin, morin, and other flavonoids. These compounds are particularly abundant in the heartwood, roots, stem bark, and leaves rather than in the pulp of the plant. Accordingly, flavonoids in the pulp are comparatively less abundant and tend to include quercetin and kaempferol glycosides. The pulp is also a source of

phenolic acids, including caffeic, ferulic, and chlorogenic acids, and carotenoids, such as β -carotene, α -carotene, and lutein. The seeds are particularly distinctive because of their biologically active lectin, jacalin, and diverse polysaccharide compositions. The solubility of seed polysaccharides in alcohol varies considerably among *Artocarpus* species, with tropical species generally exhibiting greater solubility than their temperate counterparts. Historically, these polysaccharides have been broadly characterized as starch, pectin, or crude water-soluble polysaccharide fractions rather than being classified as distinct compounds [2]. Another important constituent is jacalin, a tetrameric galactose-binding lectin found in jackfruit seeds. Jacalin has been investigated as an immunological reagent since the 1980s and has attracted interest because of its potential anticancer and antiviral activities [3].

The term “jackfruit extract” encompasses a wide range of preparations, including leaf decoctions, seed powders, pulp polysaccharides, rind extracts, and bark extracts, each with a distinct and partially overlapping phytochemical profile. This heterogeneity among plant parts is important when interpreting pharmacological literature; however, the preparation of specific plant fractions and subfractions is rarely considered or reported adequately. Consequently, it is often difficult to attribute a particular biological activity to a specific class of phytochemicals or individual bioactive constituents rather than to the crude plant preparation as a whole. Therefore, standardized extraction procedures and detailed characterization of plant fractions are required to improve the reproducibility and interpretation of pharmacological findings related to jackfruit consumption.

3. Metabolic Effects

The most extensively investigated therapeutic application of jackfruit is its potential antidiabetic activity, making this area an appropriate starting point for a critical synthesis because it illustrates both the strengths and limitations of the existing evidence [4]. Traditional use provides a specific ethnomedical context; Ayurvedic practitioners in Kerala, India, have traditionally used jackfruit leaf decoctions to manage diabetes. This traditional claim has received more extensive scientific investigation than many other reported therapeutic uses of the plant [5].

Fernando et al. reported in 1991 that *A. heterophyllus* leaf preparations improved glucose tolerance in both healthy volunteers and patients with maturity-onset (type 2) diabetes, providing some of the earliest human evidence supporting the antidiabetic potential of jackfruit leaves [6,7]. Subsequent investigations in animal models have characterized different leaf fractions and demonstrated that isolated flavonoid fractions exert hypoglycemic

effects. Proanthocyanidin- and flavonoid-rich fractions obtained from hot-water leaf extracts have also been reported to reduce blood glucose levels in healthy Wistar rats (insert citation). Consistent with these preclinical findings, a more recent single-arm clinical study involving 30 patients with type 2 diabetes reported significant reductions in fasting and postprandial blood glucose levels following 30 days of treatment with jackfruit leaf decoction (JLD). However, the absence of a control group, blinding, and a larger sample size limit the strength and generalizability of these findings. Further randomized controlled trials with standardized preparations, adequate sample sizes, and longer follow-up periods are required to establish the clinical efficacy and safety of jackfruit leaf preparations in the management of diabetes.

Mechanistic research in rodent models has focused on several plausible pathways underlying the antidiabetic effects of jackfruit. In streptozotocin-induced diabetic rats, Omar et al. reported that ethanol and n-butanol leaf extracts significantly reduced fasting blood glucose, glycosylated hemoglobin, and lipid peroxidation, while increasing insulin levels, suggesting potential insulintropic and antioxidant effects. A recent comprehensive review provides a broader synthesis of this evidence. Studies investigating other plant parts, including stem bark, fruit rag, and seeds, have reported inhibitory effects against α -amylase and α -glucosidase, suggesting that these preparations may slow carbohydrate digestion and complement mechanisms involving insulin regulation. Considering the diverse phytochemical composition of jackfruit, its antidiabetic effects may involve multiple mechanisms, including antioxidant protection of pancreatic β -cells, modulation of insulin secretion or action, and inhibition of digestive enzymes. However, the available evidence does not establish a single principal bioactive compound responsible for these effects in humans. Moreover, different plant parts, including leaves, bark, rags, and seeds, have generally been investigated in separate studies, with limited direct comparisons of their phytochemical profiles, preparations, doses, and biological activities [8,9]. Green (unripe) jackfruit flour used as a rice or wheat substitute has been investigated in relatively well-designed human studies, providing some of the more rigorous clinical evidence currently available for jackfruit. Rao et al. conducted a 12-week randomized, double-blind, placebo-controlled trial involving 40 patients with established type 2 diabetes, in which 30 g/day of green jackfruit flour was used to replace a portion of rice or wheat flour [10]. Compared with the placebo-flour group, the jackfruit-flour group showed significant reductions in glycated hemoglobin, fasting plasma glucose, and postprandial glucose levels, without a corresponding change in body

weight. Continuous glucose monitoring also indicated improved glycemic profiles during the intervention period [11]. Although the trial was relatively small, with 20 participants per group, was funded by the flour manufacturer, and had a short intervention period, its controlled design provides stronger evidence than that available from many other jackfruit studies. The observed effects require confirmation in larger and more diverse populations before the intervention can be considered for routine medical nutrition therapy. Importantly, the proposed mechanism differs from that suggested for jackfruit leaf preparations. The glycemic effects of green jackfruit flour are primarily attributed to substitution of rice or wheat with a food containing more dietary fiber and a lower proportion of readily digestible carbohydrates, rather than to a specific pharmacological action. Therefore, the clinical evidence for green jackfruit flour should not be interpreted as equivalent to evidence for the pharmacological effects of jackfruit leaf extracts.

4.Properties That Help the System Reduce Inflammation and Fight Bad Effects from Oxygen

Given the high polyphenolic content of jackfruit, antioxidant activity is one of the most frequently investigated biological properties of its different plant parts and extraction methods. However, antioxidant activity measured in experimental assays should be regarded primarily as an indicator of the phytochemical composition of jackfruit, rather than as evidence of a specific therapeutic effect. Extracts prepared from the leaves, seeds, peel, pulp, and other tissues have demonstrated free radical scavenging activity in assays such as DPPH and ABTS, as well as metal-chelating and related antioxidant assays. These activities are generally associated with the concentration and composition of phenolic acids and flavonoids in the respective plant fractions. The biological relevance of these findings becomes more significant when antioxidant activity is accompanied by beneficial outcomes in disease-related models. For example, studies in diabetic rodents have reported reductions in oxidative stress markers and improvements in blood glucose levels following treatment with jackfruit-derived preparations. Similarly, antioxidant-rich fractions from different fruit parts have been investigated for their potential protective effects against oxidative stress. Nevertheless, the translation of antioxidant activity observed in chemical or cell-free assays into clinically meaningful effects in humans remains uncertain and requires further investigation.

Evidence for the anti-inflammatory potential of jackfruit is emerging, although the available literature remains predominantly mechanistic and preclinical [12]. In cell-based models using macrophage-like cells, several compounds isolated from jackfruit fruit and leaves, including artocarpesin, norartocarpetin, oxyresveratrol,

and moracin C, have been reported to suppress the production of inflammatory mediators, such as nitric oxide and prostaglandin E₂, as well as pro-inflammatory cytokines and related signaling molecules. Moracin C has been reported to inhibit intracellular signaling pathways involved in inflammatory responses [13]. In comparative *in vitro* experiments, extracts or fractions obtained from jackfruit stems and leaves substantially inhibited nitric oxide production, in some cases showing greater activity than hydrocortisone under specific experimental conditions. However, these findings should not be interpreted as evidence of clinical superiority over established anti-inflammatory drugs. Although these results provide mechanistic support for the traditional use of jackfruit preparations in inflammatory conditions, the evidence is currently derived primarily from cell-based and other preclinical studies. Well-designed clinical studies are needed to determine whether standardized jackfruit preparations have clinically meaningful anti-inflammatory effects in humans and to establish their appropriate doses, safety, and therapeutic relevance [14]. Jacalin, a lectin derived from jackfruit seeds, has a distinctive history in immunological research and is the principal jackfruit-derived compound investigated in this context [15]. Jacalin was characterized in the 1980s as a galactose-binding lectin that interacts with human T lymphocytes to induce their proliferation. This property has led to its widespread use as a laboratory reagent for the isolation and characterization of T-cell populations, including in research involving individuals with HIV infection. As discussed later, the ability of jacalin to interact with T-cell surface glycoconjugates may also contribute to biological effects that extend beyond its traditional use as an immunological research tool.

5.Healing Wounds, Fighting Viruses, Fighting Cancer And Fighting Germs

5.1 The Cancer-Fighting Abilities of Jacalin

Among the bioactive constituents of jackfruit fruit and leaves, jacalin has received particular attention in cancer research [16]. Its proposed mechanism of action differs from that of many plant-derived anticancer agents, as its effects may involve immunomodulation in addition to direct interactions with cancer cells [17]. Jacalin recognizes specific galactose-containing glycoconjugates expressed on the surface of certain cancer cells, and *in vitro* studies have reported the inhibition of cancer cell proliferation and induction of cell death following jacalin exposure. Jacalin has also been investigated for its ability to modulate immune cell activity, potentially promoting the release of cytotoxic mediators that contribute to the elimination of the target cells. These findings provide a plausible basis for further investigation of jacalin as a potential anticancer agent. However, current evidence is predominantly derived from *in vitro* and other preclinical

studies, and the specific mechanisms, selectivity, pharmacokinetics, and safety of jacalin require further characterization. Importantly, no adequately controlled clinical studies have established the efficacy or safety of jacalin or jacalin-containing jackfruit preparations as cancer treatments in humans [18].

5.2 Fighting Viruses

Jacalin's ability to stop viruses and its ability to fight cancer work in a similar way. In 1993, some researchers showed that jacalin prevented HIV from entering cells in tests with cells [19]. Surprisingly, they found that this prevention occurs because jacalin sticks to a part of the cell, not because it sticks to the virus itself. According to a review of the plant's abilities, this way of working is different from other medicines that stop viruses. It has also been found to stop some types of viruses, such as those that cause chickenpox, and in some cases, it stops the virus that causes hepatitis C from parts of the leaves. Similar to cancer research, this information is all from tests done with cells in the lab, and no real tests with people have been done. Its use now is mostly in the lab and as a model for making medicines, not as a real treatment.

5.3 Fighting Germs

In tests that assess the ability to inhibit microbial growth, parts of the leaves, bark, and fruit rag of jackfruit have shown activity against different types of microorganisms, including those associated with dental infections and, in some reports, drug-resistant microorganisms. This activity is generally associated with the presence of flavonoids and tannins in the plants. However, the available research remains limited to cell-based and small animal studies, with insufficient evidence from human studies involving actual infection [20].

5.4 Healing Wounds

There is a test on how well jackfruit helps heal wounds: The mix of antioxidant, anti-inflammatory, and germ-fighting abilities in the plant parts working together to help the body heal by stopping damage from oxygen reducing too much swelling and stopping germs from growing in the wound is why some researchers tested jackfruit parts in a test with wounds and found that the wounds healed faster than those that were not treated. During the growth phase of healing, it is suggested that flavonoids and tannins help make blood vessels and cover the wound with new skin. This idea has not been verified in real people with wounds and is still based on tests with animals.

6. Food Applications, Gut Microbiota and By-Product Valorization

Because these topics are active areas of current jackfruit research, two developments beyond the usual medicine studies deserve a separate look [21,22]. These are the use of jackfruit as a plant-based meat substitute and the use of jackfruit as a source of fiber [23].

The ability of jackfruit pulp polysaccharides (commonly abbreviated as JFP-Ps in the literature) to modify the composition of the gut microbiota has been investigated in mouse models [24]. The administration of jackfruit pulp polysaccharides to mice increased intestinal barrier proteins that hold cells together and altered the major types of gut bacteria and the levels of short-chain fatty acids in the feces of rats fed a high-fat diet. Similar results from laboratory studies in which jackfruit peel polysaccharides were incubated with fecal bacteria showed that these polysaccharides mostly survive the gut, reach the colon, and are then fermented by local bacteria, leading to increased production of short-chain fatty acids, a typical sign of prebiotic activity. In another line of research, jackfruit seed flour has been found to inhibit colon cancer cells in the laboratory and promote the growth of *Lactobacillus casei* and *Bifidobacterium longum*, suggesting that seed flour could be a functional food ingredient rather than simply an agricultural by-product. All of this gut microbiota research has been conducted in animals or laboratory models, and no human study has yet investigated how jackfruit polysaccharides or seed flour might influence metabolism or gut microbiota. This remains an important gap, even though the field is active.

Jackfruit as a meat substitute is mainly a food technology development rather than a medical one, although it has nutritional relevance [25]. Unripe jackfruit is a whole food that can replace pulled pork, chicken, and similar dishes in plant-based cooking because its fibrous, stringy texture, when cooked, resembles pulled meat [26]. Using jackfruit as a meat substitute is mainly about texture and taste rather than matching the nutritional composition of meat. It contains less protein than the meat it replaces; a cup of cooked jackfruit provides only a few grams of protein, although it provides dietary fiber and micronutrients. Therefore, to make a jackfruit-based meal nutritionally complete, another protein source is required. Several groups have attempted to address this limitation by combining jackfruit with protein-rich ingredients. One extrusion-based formulation that combined jackfruit with cashew nuts achieved approximately 15% protein in the final product and received favorable taste scores, demonstrating a possible approach for developing a more nutritionally balanced food.

7. Adverse Effects and Safety Considerations

Most of the above-mentioned studies showed no toxicity at the levels tested in animal models, and jackfruit is

normally regarded as safe when eaten as a whole food [27]. Nevertheless, as jackfruit consumption has spread beyond its growing areas, a specific and clinically serious adverse reaction has been reported more frequently: IgE-mediated anaphylaxis in patients with latex allergy [28]. This reaction is part of a latex–fruit syndrome, in which plant defense proteins that are similar to the major latex allergen hevein can trigger systemic allergic reactions to foods, such as banana, avocado, kiwi, and, in fewer case reports, jackfruit [29].

A non-healthcare worker with a history of latex sensitization from medical exposure reacted to dried jackfruit, showing positive skin prick test results for both latex and jackfruit allergies. A healthcare worker experienced anaphylaxis after consuming dried jackfruit and required intubation. Clinicians and food manufacturers should be aware that a history of latex allergy, including latex exposure, such as long-term glove use, is a key risk factor that should be considered before recommending jackfruit-based products. Jackfruit is becoming increasingly popular as a plant-based meat substitute and is being introduced to people who have never eaten it before. This risk is separate from and not reduced by any of the beneficial bioactivities mentioned in this review [30].

8. Present Difficulties and Restrictions in the Literature

The jackfruit pharmacology literature shows methodological patterns that limit the confidence in its therapeutic claims [31]. First, differences in extracts are common but are rarely considered. Studies that refer to "jackfruit extract" may use leaf, seed, rag, rind, bark, or pulp that is prepared with water, ethanol, or other solvents at unstandardized concentrations. When researchers compare studies that claim bioactivity, such as antidiabetic effects, they often use completely different plant parts and preparation methods. Because of these differences, it is difficult to determine which part of jackfruit or which specific compound is responsible for an effect.

Second, for every claimed activity, except for the antidiabetic effect, there is a large gap between the data from rodents and cell cultures and evidence from humans [32]. Most studies on anticancer, antiviral, antimicrobial, and wound-healing effects rely on in vitro or animal model results. Using these results to treat humans without dose-finding and safety studies would be premature, especially for an immunologically active molecule, such as jacalin. The systemic effects of jacalin in humans have not been previously described. Third, in the antidiabetic literature, the best evidence in the field, the available human trials are small, short, single-center, and at least one was funded by the manufacturer of the tested product.

These findings were not invalidated. Independent replication is required before firm clinical recommendations can be issued.

Fourth, research on medicine generally lacks dose and consistency. Leaf decoctions are. Measured using conventional methods instead of using standardized extract quantities. This lack of standardization limits the repeatability of the results. This makes it difficult to convert promising results into specific therapeutic products. Finally, there is a scarcity of safety data for isolated active ingredients, particularly jacalin. The pharmacokinetic and toxicological profiles of jacalin in humans are unknown. The immunostimulatory properties of jacalin, such as T-cell mitogenicity and macrophage activation, may be beneficial in antitumor settings. It can also cause harmful immune activation when administered systemically in other contexts [33].

9. Research. Prospects

Instead of stating that more research is needed, the limitations we have point to a few clear and doable gaps. Given the pilot data that are already available, the next and most urgent step is to conduct adequately powered multicenter randomized controlled trials using green jackfruit flour or standard leaf extract in patients with type 2 diabetes. Because leaf decoction and pulp/flour interventions are mechanistically different, one is pharmacological, and the other replaces the carbohydrate load, current studies have not directly compared them. Therefore, these trials should be funded independently for longer than 12 weeks to capture durable glycemic control and include a head-to-head comparison. A prerequisite for the clinical development of a jackfruit-derived pharmaceutical or nutraceutical product is the standardization of jackfruit extracts using phytochemical marker compounds, such as measuring total prenylated flavonoid or proanthocyanidin content [34]. This goal is now more attainable than before, thanks to the phytochemical profiling already published for several jackfruit tissues. Given that jacalin is available in a reagent-grade form, basic pharmacokinetic and dose-toxicity studies in animal models, followed by early phase human safety studies, are necessary and currently missing steps before extensive in vitro anticancer and antiviral data can be meaningfully translated. This type of investment would normally come from an oncology or infectious disease drug development program with funding support. To determine whether the strong prebiotic signal observed in rodents translates to humans, human feeding trials using jackfruit pulp polysaccharide or seed flour should be conducted. These studies would incorporate 16S rRNA sequencing and short-chain fatty acid measurement, just as current rodent protocols do, and would build on methods already used in food science laboratories. Finally, a real and currently neglected safety

gap can be addressed by the clinical characterization of jackfruit-related allergies. This includes measuring the incidence among patients, testing cross-reactivity, and providing clear consumer labeling as jackfruit-based meat analogs enter mainstream food markets. The best way to achieve this is through case registries and population surveys in areas where jackfruit-based products are available.

10. Conclusion

Jackfruit is special when it comes to nutrition because it has a pulp that is rich in fiber and contains micronutrients. It also has leaves, seeds, and bark that contain many phytochemicals. These plant chemicals can have different health-related effects in laboratory studies. Some human studies have added to the long history of animal studies and traditional knowledge. The ability of the leaves and flour from unripe fruits to help with diabetes is an advance in demonstrating its effects in human studies [35]. Research on the seed protein called jacalin and its mechanism of action against viruses and cancer is very interesting. However, this research is limited to laboratory studies [36]. This research uses a method that affects the body's cells instead of directly attacking the virus. The plant contains chemicals called polyphenols. These chemicals are thought to help with oxidation, inflammation, bacteria, and wound healing. Most of the evidence for these benefits comes from studies on animals and cells. Currently, the most active area of research is the use of jackfruit as meat and the role of sugars in the pulp in the gut. When all the information is put together, the data show that people are still interested in jackfruit as a food that can help with health. It might also be a source of medicine. Currently, there is not enough evidence to say that jackfruit extracts or certain parts can be used as treatments for viruses, diabetes, cancer, or any other health problem discussed here. The idea that jackfruit is beneficial for health is still considered possible. This is biologically plausible, but has not yet been proven in real medical tests. More tests are needed to change this remedy into something that is scientifically proven. It is important to move from something that is supported by tradition to something that is supported by science.

Author Contributions

Deepti Dwivedi: Supervision, validation, critical evaluation, and manuscript final approval.

All the authors have read and approved the final version of the manuscript.

Himanshu: Literature search, data interpretation, and critical revision of the manuscript.

Ankur Srivastava: Conceptualization, literature review, data collection and analysis, manuscript preparation.

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