

Research Article

Nutrition and Health Benefits of Indigenous Fruits from African Tropical Trees (Baobab, Tamarind, Jamun and Smelly Berry)

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Malnutrition especially undernutrition will continue to be a public health problem in developing countries. In rural areas, stunting, anaemia, iron, and vitamin A deficiency is among the most prevalent nutritional problems in public health. Tanzania and India are rich in varieties of indigenous fruits which contain macro and micro nutrients with a good pack of phytochemicals. Indigenous fruits contain lots of dietary fibre which has a positive effect association with weight loss. On the other hand, phytochemicals present in indigenous fruits fight against chronic diseases. Studies have shown the nutrients in baobab, tamarind, jamun and smelly berry could be enough to alleviate macro and micronutrient deficiency. This review aims to open people's minds to the nutritional and health benefits associated with indigenous fruits along with the alleviation of chronic diseases. The authors encourage maximum consumption and incorporation of aforementioned fruits in local dishes to improve the nutrition and well-being of people.

Keywords: chronic diseases, indigenous fruits, malnutrition, micronutrient deficiency.

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Introduction

Inadequate macro and micronutrient nutrition and its consequences, such as anaemia, iron and vitamin deficiency, and growth retardation could particularly affect children youth and adults. Micronutrient malnutrition, especially of vitamin A, iron, and zinc, is common among the vulnerable group and remains one of the major public health challenges in developing countries [1]. Malnutrition can result both from a diet that is poor and deficient in essential macro and micronutrients and from the inefficient utilization of available nutrients due to infections and parasitic infestations [2]. Food insecurity or inability to access enough food is often cited as the main factor responsible for malnutrition [3]. It can affect the population from infancy to old age, all geographies, rich and poor people and all sexes; therefore, no country in the world can afford to overlook it [4]. Globally, under 5 years of age, 149.2 million children are stunted, 45.4 million are wasted and 38.9 million are overweight. The number of children with stunting is declining in all regions except Africa [5]. Malnutrition continues to be a major public health problem throughout the developing world, particularly in southern Asia and sub-Saharan Africa.

Stunting is among a threat for under five children according to Tanzania Demographic Health Surveys [6]. The survey revealed twelve regions with a high prevalence of stunting which are Iringa (56.9 %), Njombe (50.4 %), Rukwa (49.8 %), Geita (38.6 %), Kagera (34.3 %), Simiyu (33.2 %), Tabora (33.1 %), Katavi (32.2 %), Songwe (31.9 %), Mbeya (31.5 %), Mara (30.7 %) and Morogoro (30.6 %). In addition, HIV/AIDS and COVID-19 are diseases of the immune system. The new strategies, including specific dietary nutrients, can be helpful to improve immune functions, and quality of life and thus improve survival in infected individuals. There are more than 200 edible species of indigenous fruits as well as tropical fruits available and distributed throughout the year [7]. The deficiency of vital micronutrients and vitamins in the dietary system is a form of 'hidden hunger' that could be addressed through the availability of fruits and fruit products [8]. To maintain body health and well-being, WHO recommended at least 400 g (i.e., five portions) of fruit and vegetables per day, excluding potatoes, sweet potatoes, cassava, and other starchy roots [9]. The main victims of hunger and malnutrition are largely pregnant women, lactating mothers, youth and children. Africa has abundant novel plant species which are known to be rich in health-promoting compounds, such as essential vitamins, minerals, and they are high in fibre. Fruits also provide a wide range of health-boosting antioxidants, including flavonoids. Eating a diet high in fruits can reduce a person's risk of developing heart disease, cancer, inflammation, and diabetes. This review promotes the nutrition and health benefits of indigenous fruits from African tropical trees (baobab, tamarind, jamun and smelly berry). The consumption and inclusion of these fruits in the diet could alleviate macro and micronutrient deficiency and the problem of stunting in developing countries.

Baobab fruits nutrition and health benefits

Baobabs are the most iconic trees on the savannah; and also the longest-lived. Its size is so impressive that its hollow stem can measure more than 20 meters in diameter and can store up to 120 thousand litres of water. Some baobab trees are used as houses, grain warehouses or animal shelters. Baobab fruit powder is exceptionally nutrient-dense with one of the highest Antioxidant profiles of any fruit on the planet. It is a rich source of vitamin C, packed with calcium, iron, magnesium and potassium, and contains 50% dietary fibre which research has shown to be prebiotic in nature. The powder of baobab is characterized by a cream colour when is freshly harvested and pink colour when undergoes vitamin C spoilage. The powder is used as a thickening agent in soups; juices in food industries but is also used as an important food ingredient for making appetizers at home foods like porridge and soft drinks. They are also fermented and used as a flavouring agent, or roasted and eaten as snacks [10]. The nutritional composition of baobab powder includes moisture (10.92%), protein (3.7 %), fat (0.47 %), fibre (44.50 %), carbohydrate (79.65%), ascorbic acid (173.2 mg), folic acid (43 µg), ash (5.28%), energy (250 Kcal), calcium (342 mg), magnesium (158 mg), phosphorous (47 mg), potassium (2189 mg), sodium (10 mg), iron (8.42 mg) and zinc (0.92 mg) [11]. The powder is attached to the seeds crushed to powder or soaked in cold water, and squeezed with hands or a squeezer to get juice. The baobab seeds powder is ground with peanuts, water and sugar to make a sauce used with porridge. Therefore, baobab powder can be incorporated into many dishes for ready-to-reconstitute, ready-to-cook and ready-to-save snacks to improve nutritional quality and alleviate micronutrient deficiency. The health benefits of baobab fruits and powder are described hereunder:

Boost the immune system of the body

Baobab fruits and powder are good sources of ascorbic acid which is a powerful antioxidant that supports immune function, collagen production and improves iron absorption [12]. Ascorbic acid is vital for maintaining healthy bones, skin, blood vessels and more. Baobab powder has 6 times the vitamin C of orange by weight and provides 33 per cent of the recommended daily amount in just one tablespoon.

Improve gut health

Baobab powder is rich in prebiotic fibre which is used as a food source for microbiota. Prebiotics are defined as non-digestible food ingredients that beneficially affect the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon [13]. Probiotics are live microbiota that resides in the gut and support digestion and immune health. Among the health-promoting foods, probiotics and prebiotics have emerged as the major nutritional factors influencing gastrointestinal physiology and function. Probiotics create this desirable effect by incorporating microorganisms or microbial cell preparations or components directly into the food either as a stable culture or as a part of a food fermentation [14]. Baobab is a prebiotic food, meaning that it includes soluble fibres that are non-digestible and benefit the gut microbiome to produce beneficial microflora (probiotics) such as *Lactobacilli* and *Bifidobacteria*. Baobab is rich in pectin and a great source of prebiotic fibre for people who experience digestive distress with inulin a prebiotic derived from chicory root. Baobab powder is 50 per cent fibre, and 30 per cent of the fibre is prebiotic. The benefits of prebiotic fibre extend beyond the gut and increase stress resilience, alleviating anxiety and even improving sleep according to research at the University of Colorado in Boulder. Research published in the Journal Microorganism showed that baobab fruit powder boosts the production of health-promoting short-chain fatty acids acetate, propionate, and butyrate. Low levels of short-chain fatty acids are linked to digestive disorders like irritable bowel syndrome and ulcerative colitis. Supplementation with foods that produce short-chain fatty acids also reduces the tendency to diabetes and heart disease.

Improves bone health and prevents osteoporosis

Osteoporosis is a public health problem with more than 200 million people suffering from it worldwide. It occurs when bone tissues become structurally deteriorated and bone mass becomes fragile, resulting in an increased risk of fracture. This can lead to a decrease in bone strength which can increase the risk of fractures [15]. Calcium is an essential nutrient that plays a vital role in neuromuscular function, many enzyme-mediated processes, blood clotting and providing rigidity to the skeleton by virtue of its phosphate salts [16]. There are plenty of foods rich in calcium from plant sources. Baobab powder is the richest source of calcium which is the most abundant mineral in our bodies and together with vitamin D makes for strong bones and healthy skin. Baobab powder has possibly the highest calcium content of any plant food it provides 2 times the calcium of milk, making it an ideal calcium boost for those who don't eat dairy foods. For the cardiovascular system consuming enough calcium lowers the risk of high blood

pressure. Calcium also improves skin barrier function which helps retain hydration for plump youthful skin. People with dry, fragile skin and bones in particular benefit from calcium-rich foods [17].

Maintaining the body fluid balance

Baobab powder provides 4 times the potassium of banana fruits, making it an excellent source of this crucial nutrient [18-19]. Along with sodium, potassium plays a role in maintaining the body's fluid balance, muscle and kidney function. Every cell in the body needs potassium, for the cardiovascular system it regulates heartbeat, relaxes blood vessels and promotes normal blood pressure. Potassium prevents cramping, constipation and calms the mind.

Regulate body chemical reactions

Baobab powder is the richest source of magnesium which is used in more than 600 reactions in the body. Magnesium regulates blood sugar and is essential to heart health and brain function. For athletes, magnesium improves leg strength and improves performance. Magnesium deficiency affects mood and is associated with increased depression, anxiety and sleep problems.

Prevent noncommunicable diseases

Nutrient-dense baobab powder is an excellent source of polyphenol antioxidants. Polyphenol antioxidants protect the body's tissues against oxidative stress associated with cancer, and coronary heart disease [20]. It's a good idea to consume antioxidants every day to reduce inflammation which puts us at risk of chronic disease. Studies show that baobab's polyphenol antioxidants improve sugar handling and support a balanced gut microbiome. A single helping of nutrient-dense baobab powder includes 6 times the amount of polyphenol antioxidants found in berries so using a tablespoon or two spoons into a smoothie will keep the body free from free radicals.

Weight management

Baobab rich in prebiotic fibre and polyphenols supports good gut health and helps with weight management [21]. Baobab has been shown to promote the feeling of fullness. The use of prebiotic fibre has been shown to help with the absorption of intestinal fat. In addition, studies indicate that dysbiosis, a state of gut imbalance caused by the overpopulation of bad bacteria (like firmicutes), can contribute to obesity. Prebiotics have been proven to support good gut health to prevent dysbiosis. The gut imbalance has also been connected to mental health issues like depression and anxiety, which can affect our appetite, energy levels, and efficiency. Altogether, this shows that prebiotics can help to lose weight by regulating appetite, improving mood, mental health, increasing energy and efficiency.

Control diabetes

It's a good idea to pay attention to blood sugar even if we are not diabetic, maintaining stable blood sugar levels throughout the day helps keep our energy strong, brain health, and mood balanced. Eating low glycemic foods that take longer to be digested (such as fibre-rich baobab powder) is a great way to support balanced blood sugar levels. Research shows that baobab powder is a low-glycemic food. Furthermore, baobab is among low glycemic index foods which are ideal to control diabetes type 2 [22].

Improve skin health

Not only is a balanced gut microbiome good for our digestion, but it's also great for your skin thanks to the gut-skin axis. Baobab powder's high vitamin C content also helps increase collagen and elastin production, the proteins that keep the skin supple and youthful. Add in baobab powder's incredible antioxidants that help fight oxidative damage, and we've got one of the best foods for glowing skin.

Food ingredients with delicious taste

Baobab powder has a delightful, mild citrus flavour. Taking baobab powder can be as simple as mixing it with water or blending it into a smoothie, or it can be included in recipes for pancakes, bread, sauces, desserts and more. The consumption of baobab powder-incorporated foods boosts nutrient intake and at the same time prevents the risk of

chronic diseases. Baobab is naturally sweet and tangy which is an advantage of adding it to any recipe. In fact, mixing baobab powder with honey makes a great healthy immune treatment for children and adults too [23].

Tamarind fruits nutrition and health benefits

Tamarind (*Tamarindus indica* L.) is among the fruit species found in Tanzania, which belongs to the family Leguminosae and is native to tropical and sub-tropical fruit in Africa although, it is cultivated throughout the world, especially in tropical countries. The fruit has several names but the word Tamarind means 'Indian date'. It has been largely used in India and also around the world because of its flavour and multiple benefits for health. The tamarind fruit has many industrial and commercial applications. Its pulp, which has a sour and refreshing taste, can be consumed fresh or processed in the form of candy, ice cream, liquor, soft drinks, concentrated juices and seasonings [24]. Fruits possess other health benefits beyond and above basic nutrition. It can be used as a laxative, expectorant, anti-inflammatory and antioxidant. The nutritional components of tamarind pulp are 15.50 per cent moisture, 7.50 per cent crude protein, 3.00 per cent crude fat, 4.50 per cent crude fibre, 3.10 per cent ash, 2101 KJ energy, 44.26 mg ascorbic acid, 27.30 mg sodium, 230.0 mg potassium, 100.20 mg calcium, 25.00 mg magnesium, 4.50 mg iron, 0.80 mg zinc and 25.87 mg phosphorous [25]. The tamarind pulp stands out due to its nutritional value, being a good source of vitamin C, dietary fibre, and an excellent source of folates. The emergence of heathy-related food problems is now a global issue. Junk food is associated with saturated fats high salt and sugar which produce toxic compounds in the body known as free radicals [26]. Free radicals caused damage to the cells and if not controlled may cause inflammation and degenerative diseases such as cancer, Alzheimer's, overweight and obesity, ageing, osteoporosis etc. [26]. Tamarind fruits provide excellent dietary antioxidants (vitamin C) and other phytochemicals which combine with body enzymes antioxidants like superoxide dismutase, catalase and glutathione peroxidase to prevent or quench free radicals from the body cells [26]. Tamarind is used all over the world to make chutneys, stews, sauces, and even desserts. Apart from giving food a burst of flavour, tamarind comes with a lot of health benefits as well. From boosting immunity to keeping the liver and heart safe from diseases, tamarind does health a world of good.

Helps in weight loss

Obesity isn't caused just because of eating too much, but also because of metabolic disorders that impede the body to use energy and fat from food correctly. To prevent this, keep a physically proactive lifestyle should be kept, and also eating healthy food, as organic as possible [27]. Tamarind has been shown to regulate lipid metabolism, easing detoxification and correct use of toxic and healthy fat, respectively. Tamarind is rich in fibre and has no fat content. Studies suggest that eating tamarind daily might actually help in weight reduction since it contains flavonoids and polyphenols. Also, tamarind is loaded with hydroxycitric acid, which reduces appetite by inhibiting amylase, an enzyme responsible for converting carbohydrates into fat.

Prevents peptic ulcers

Peptic ulcer is among chronic disease which is very painful. These are basically sores that appear in the inner lining of the stomach and small intestine. The presence of polyphenolic compounds found in tamarind can prevent these ulcers [28].

Effective in managing diabetes

Tamarind seed extracts are anti-inflammatory in nature and they are even said to stabilize blood sugar levels and reverse the damage of the pancreatic tissue in those suffering from diabetes [29]. The enzyme alpha-amylase which is proven to reduce blood sugar levels is rich found in tamarind.

Helps with digestion

Tamarind has been used since ancient times as a laxative because of its tartaric acid, malic acid, and potassium content which help in digestion [30]. Its ability to relax abdominal muscles is why it is also used as a remedy for diarrhoea. While the fruit is used to relieve constipation, the leaves provide treatment for diarrhoea, the root and bark can be consumed to alleviate abdominal pain.

Aids a healthy heart

Tamarind is a very heart-friendly fruit [31]. Flavonoids present in tamarind lower Low-Density Lipoprotein (LDL) or

“bad” cholesterol and raise High-Density Lipoprotein (HDL) or “good” cholesterol levels, thus preventing the build-up of triglycerides (a type of fat) in the blood which causes cardiovascular disease. It also has high potassium content which helps keep blood pressure in balance.

Takes care of liver

Tamarind is user friendly fruit to the liver and other internal organs [32]. A diet rich in calories leads to a fatty liver and studies suggest that daily consumption of tamarind fruit juices and extracts can reverse this condition.

It prevents allergies

Enough consumption of tamarind fruits and their products is an effective way to deal with allergic asthma and cough because of their antihistaminic properties [33]. It's also a rich source of vitamin C which boosts the immune system to prevent colds and coughs. Regularly eating tamarind fruits will prevent many non-communicable diseases. This fruit can also be utilized to prevent micronutrient deficiency.

Jamun fruits nutrition and health benefits

Jamun (*Syzygium cumini* L.) is a tree belonging to the Myrtaceae family, originally from India and widely distributed in Asian countries such as Malaysia, Thailand, and the Philippines. The plant was introduced in many countries in the African continent and in Latin America where it easily adapted to the tropical and subtropical climate [34-35]. The jamun fruits are characterized by dark purple with an astringency taste. The seeds' colour are ranging from white to pink. The jamun fruits have many nutritional and health benefits which can be used to ameliorate micronutrient deficiency and non-communicable diseases such as diabetes type 2, cardiovascular disease, overweight and obesity, boost the immune system, improve digestion and reduce the risk of high blood pressure. Fruits belong to low glycaemic index foods which can be used to reduce the risks of T2D patients and reduce the death rate [22]. The fruit aids in the conversion of carbohydrates to energy and regulates blood sugar levels. Because of its low glycemic index, diabetic patients should consume jamun fruits frequently. It alleviates diabetic symptoms such as excessive urination or pushing. Health-protective functional foods are receiving greater attention in the nutrition sector because they support good health while lowering medication costs [36]. Fruits have been used to treat and cure a variety of health conditions since ancient times. The nutritional composition of jamun fruits is crude fat (1.18–4.50%), crude protein (6.3–8.5%), carbohydrate (41%), crude fibre (2.64–16.9%), calcium (0.41%), and phosphorus (0.17%) [37-38]. Apart from nutrients, jamun fruits also contain phytochemicals such as phenolic compounds, terpenoids, nitrogen compounds which have strong antioxidant properties [39]. The following explanations are some of the health benefits of jamun fruits.

Improves haemoglobin

Jamun is rich in ascorbic acid and iron, which help improve haemoglobin count [40]. The iron in jamun acts as a blood purifier. The increased haemoglobin count encourages blood to carry an increased level of oxygen to organs and keeps them healthy.

Keeps skin healthy

Jamun fruits also happen to have astringent properties, which are great for skin health [41]. It will save you from pimples, wrinkles, acne, and blemishes. Moreover, ascorbic acid in jamun has inflammatory properties that help make skin softer and improve its texture.

Manage diabetes

Jamun fruits have very low calories, it is safe to consume for those having diabetes. Moreover, jamun fruits contain polyphenolic ingredients, which help treat diabetes. Those people suffering from diabetes need to limit their fruit intake due to the sugars in them. However, jamun fruit can easily be consumed for diabetes due to its very low sugar [42]. The use of extracts of the bark, seeds, and leaves can achieve a prolonged decrease in blood sugar and glycosuria (sugar in urine). In addition, its seeds have alkaloids, which offer hypoglycaemic effects. The best part is people with diabetes can eat jamun fruits every day to help control their sugar levels. This further helps them improve the body's insulin activity and sensitivity. The powder made from the seeds can be taken as an adjuvant for both type-2 diabetes, insulin-dependent and non-insulin-dependent. Jamun fruits and their seed powder offer control of diabetes

during the stage of Impaired Fasting Glucose (IFG). This early regulation helps people prevent the early onset of diabetes and further complications.

Boosts heart health

Jamun fruits are rich in antioxidants and minerals like potassium. These nutrients play a vital role in keeping the heart healthy and preventing heart disease [43].

Weight loss

Jamun fruits are rich in fibre and have low calories, making them the ideal fruit for weight loss [44]. Moreover, fruits rich in fibre enable better digestion and reduce water retention in the body.

Improves gastric health

Jamun fruits have diuretic properties that can reduce digestive issues [45]. This is because it flushes toxins out of the kidneys and prevents issues of nausea and vomiting. The fibre improves digestion, which helps address the problem of constipation.

Acts as an immunity booster

Considering jamun fruits are rich in antioxidants, vitamins, and minerals, help to improve immunity [46]. This, in turn, helps stay healthy and avoid getting sick.

Maintains oral health

Jamun fruits are known to have antibacterial properties, which can benefit oral health [47]. It protects your teeth from oral infection and bad bacteria. It can also help to strengthen gums and teeth. Jamun leaves can be used for treating throat problems. A decoction from the tree bark can be used to rinse the mouth to treat mouth and throat ulcers.

Prevents infection

Jamun fruits have antibacterial and anti-infective properties, which can help to avoid infections. This fruit is rich in compounds such as malic acid, gallic acid, tannins, oxalic acid, and betulinic acid, which fight infections in the body [48].

Smelly berry fruits nutrition and health benefits

The smelly berry vitex (*Vitex mombasae*) is an indigenous fruit which has known by different names depending on the place and tribe. In Bena, they called *msasati*; Fipa *mchinka*, *mkiinka*, *mfulu*; Hehe: *mfudululenga*, *msasati*; Nyamwezi: *msungwe*, *msungwi*, *mtalali*; Nyaturu: *msasati*; Nyiramba: *msasati*, *msassi*; Rangi: *mjumbau*; Sukuma: *mgukubi*, *msungwi*; Swahili: *mfudumaji*, *mtalali*; English: *smelly berry vitex*; Zigua: *mgobe*; Zinza: *mkakata*, *msungwa*. It is a shrub or tree found at low to medium altitudes on stony outcrops and in deciduous woodland from Kenya and Zambia to South Africa. In Tanzania, it is widespread from the coast to Tabora and the Lake Victoria islands and is common north of Kongwa. Also found in a riverine forest near Kigoma, 0-1,600 m. The fruits are juicy and eaten raw. They have a sharp persistent taste and an unpleasant smell, but are much eaten especially by children. The fruits are approximately 2 to 3 cm long. Fruits are collected from April to June. Fresh fruits cannot be stored for a long time period due to their perishable nature. The fruits are usually collected from the wild but the species is also protected on farms by local people [49]. The fruit contains ascorbic acid and stains a dark purple-black. Fruits are important foods in the human diet; they mainly provide vitamins, minerals, fibres and phytochemicals. Recently, functional and nutraceutical foods, which provide benefits for the prevention/treatment of diseases were incorporated into human nutrition. In addition, to their nutritional components, they have acquired an increased relevance; and within these food groups, fruits are highly represented (baobab, tamarind, jamun and smelly berry vitex) and their consumption was associated with the health condition and longevity of people. Many *Vitex* fruits are edible; about 70 species have been registered in Africa, where they are known as “chocolate berries”. These wild berries have a significant contribution to food security and sustainable rural development for some African communities and many of them are valuable commercial products in those regions [50-51]. The most representative chocolate berries are *V. doniana*, *V. payos*, *V. fischeri*, *V. grandifolia*, *V. simplicifolia*, *V. madiensis*, *V. mombasae*, *V. ferruginea* and *V.*

poora [50-51]. Vitex fruits are consumed in fresh, dried or boiled preparations with sugar (e.g. jelly, marmalade) [50-51]. Research groups have developed new products based on chocolate berry properties, for instance, the *V. doniana* pulp was used to prepare a syrup with sensorial characteristics and acceptability similar to those of honey [52]; a pasteurized juice of *V. mombassae* showed good acceptability and its physicochemical characteristics were preserved up to three months of storage [53]. The physico-chemical characterization of *V. mombassae* pulp is 67.9 per cent moisture, 3.9 per cent protein, 1.5 per cent fat, 12.3 per cent fibre, 5.1 per cent ash, 77.2 per cent carbohydrates, 55 mg calcium, 156 mg magnesium, 43 mg sodium, 1757 mg potassium, 309 mg phosphorous, 2.69 mg iron, 427.7 mg ascorbic acid, 3.56 pH, 0.14 per cent acidity, 12.3 total soluble solids (°Brix) [54]. Processing of products such as jams, juices and fermented beverages was reported in isolated cases. The wild fruits under investigation were reported to have medicinal uses that included blocking diarrhoea, boosting the immune system, increasing blood levels and boosting the appetite of the sick. The highlight of smelly berry health benefits is described hereunder:

Boosting the immune system

V. mombassae fruits are good sources of ascorbic acid and minerals which is a powerful antioxidant that supports immune function, collagen production and improves iron absorption. Ascorbic acid is vital for maintaining healthy bones, skin, blood vessels and more.

Increasing blood levels

V. mombassae fruits are rich in vitamin C which improves the absorption of iron, which helps improve haemoglobin count. The iron in *V. mombassae* acts as a blood purifier due to its antioxidant nature. The increased haemoglobin count encourages blood to carry an increased level of oxygen to organs and keeps them healthy.

Conclusion

Indigenous fruits are a valuable source of macro, micronutrients and phytochemicals which promote good health and fight against non-communicable diseases. Highly consumption and inclusion of these fruits in the diet will improve nutritional status and alleviate macro and micronutrient deficiencies as well as chronic diseases. In the future, indigenous fruits can be used as a source of alternative medicine to reduce the toxic effects of industrial drugs. We advise people to use indigenous fruits in abundance to increase immunity in their bodies and prevent the spread of non-communicable diseases. We advise the government of Tanzania and India to ensure that indigenous fruits are planted in abundance for the benefit of the existing and future generations to maintain good nutrition in society.

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