

RICE AS MEDICINAL PLANT: A REVIEW

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Abstract:

One of the primary cereals in India is rice. India is the second-largest producer of rice in the entire world. The plant species known in English as rice most often is Indian rice. Rice is the seed of the kind of grass *Oryza sativa* (Asian rice). Given this, it is advised to choose whole-grain brown, red, black, or wild rice for your health. A diet rich in foods that contain antioxidants has several positive effects on health. In addition to being a food, rice was also utilised in conventional medicine. Brown rice can assist sufferers keep up blood sugar control. Rice treatments is a first-aid remedy for soft tissue injuries which involves rice, cold, compression, and elevation. Ancient rice has been successfully utilised to treat a variety of specific conditions, including high blood pressure, digestion issues, children's diarrhoea, irritation of the skin, and regulating blood sugar levels. Rice is crucial for controlling the digestive systems, stopping constipation, and operating as a diuretic. It also has a high level of fibre.

Keywords: Rice, Medicinal properties, Phytochemicals, antioxidant activity, rice bran.

Introduction:

Rice as plant is very beneficial as well as it acts as medicinal plant also. Rice is means of livelihood of every house in India. Rice contains carbohydrates, proteins, fat, fiber. Rice contains starch and it is rich source of carbohydrates, protein. Rice has medicinal properties too. In early whole rice mentioned as perfect and complete food. Dried, sprouted rice grains improves the human digestion, it also strengthens the muscles, increases appetite, it also cures indigestion. Rice can also be used as eye lotion and its dry powder of rice act as skin ailments.

Red rice is best variety of rice and has great nutritional values. It has great energy source, it contains lots of carbohydrates, good source of vitamins and minerals. It contains low sugar, no gluten. It is non-allergenic.

In India rice act as ointment in terms of curing the inflammatory surface of body. In Indian state Chhattisgarh, rice act as a vital role in every households. Rice as medicinal property have in “Laicha”. It has this name because of its own properties. It is very popular variety of rice. Many rice brand act as medicinal plant such as Ramkeli, Shyam lal, Tenduphool, Kanthi Banko, Alcha, Udan Pakheru, etc. Many rices are being cultivated and are using as medicinal properties.

- **Structure of the rice grain**

Oryza sativa, also known as *Oryza* a grass plant and yields rice, is a member of the Poaceae family of plants and a type of cereal grain that can be digested.

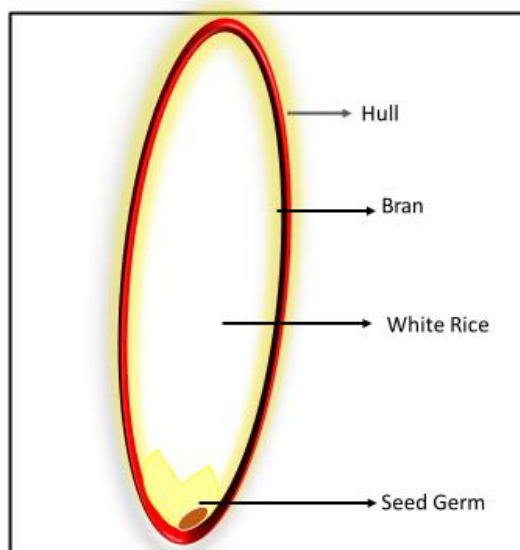


Figure 1. Structure of Rice grain.

Hull:

The caryopsis (brown rice), which is harvested as a covered grain (rough rice or paddy), is surrounded by a rigid siliceous hull. Hull- Lemma, a larger modified leaf-like structure, and palea, a smaller modified leaf-like structure, make up the majority of the hull. In certain cultivars, the laminae may have trichomes (structures that resemble hair), but not in others. [6]

Caryopsis:

The botanical name for an indehiscent, single-seeded fruit (brown rice) is caryopsis. It is made up of the seed and a firmly attached seedcoat, or pericarp.

Pericarp:

Several layers of partially crushed spongy the tissue known as par lignified crossed cells that stretch down the longitudinal length of the grain, a thin cuticle that covers the epidermis, and tube walls—the remnant of the inner skin—make up the pericarp. The fibrous structure of the pericarp is provided by cross and tube cells. Spongy parenchyma layers have four vascular bundles, one on each of the frontal, dorsal, and lateral sides.

Seed:

Nucellus, embryo, endosperm, and the seed coat, or testa, make up the seed. The structure, makeup, and functions of the seed's tissues vary. The majority of the seed is made up of stored nutrients that are critical for the development of young germ as well as serving as a source of nutrition for people.

Testa and nucellus:

Attached to the pericarp, the testa is the seed coat, and it is made up of the nucellar cuticle, the testa cuticle, and a single crushed layer of nucellar cells. The tissues around the testis and nucleus have fused together. The testa or the pericarp contain the pigments in coloured rice. The tissues around the testis and nucleus have fused together. The testa or the pericarp contain the pigments in coloured rice.

Embryo:

The embryo, also known as the germ, is located at the basal end of the grain on the ventral side and makes up between 1 and 3 percent of the grain's overall weight. The scutulum, embryonic axis, and numerous components that enclose the embryo make up the embryo. The greatest portion of the embryo, the scutulum, may be found between the starchy endosperm and the embryonic axis. Its three antennae are the ventral scale and the two lateral scales that cover the coleoptiles in part. The foetal axis is a joint architecture made up of the precipitation (leaf), hypocotyl (stem), and fundamental (root). Coleoptile protects the plumule from outside elements. The radical is made up of the pericycle, provascular tissue, hypodermis, cortex, root cap, root peak, and epidemis. The radical is encased in the coating of Coleorhiza. Upward and ventral to the coleorhiza, the epiblast sheaths the lower part of the juvenile axis. Aleurone layer and starchy endosperm make up endosperm.

- **Chemical Composition of Rice**

A. Moongngarm et al. Phytochemical and rice composition should be evaluated. Khao Dok Mali 105 (Non-waxy rice), RD6 (Waxy rice and white in colour), Black rice (Waxy and dark purple in colour), and Red rice (Non-waxy and red-brown in colour) were the types of rice that were employed by the authors.[5] Fat, Protein, Carbohydrate Fiber, Ash and phytochemicals are observed Phenolic compounds, Phytic acid (mg/g), γ -oryzanol (mg/g), α -tocopherol (μ g/g), γ -tocopherol (mg/g)[5].

- **Nutritional Value of Rice**

An excellent source of complex carbs is rice. Slow starch digestion (with low glycemic index), caused by a substantial amount of trypsin and the size and structure of the starch granules, is credited to the breakdown of sugars into glucose, the majority of which is used as energy for bodily activity and as vital fuel for the brain. [7] It was observed that rice produced Type II diabetic cases, specially white rice showed the type II diabetic cases. So replacement of white rice to other grain is required for low risk of diabetes.[8] Essential carriers of vitamins, nutrients, and other nutrients in food are sugars.[9]

For cardiovascular plus organs' and eyes' and the appearance of skin plus hair's and sharper eyesight's sake proteins are important, rice is a good source of protein. For energy and nourishment to skin and blood vessels B-complex vitamins are required brown rice is a good source for B-complex. Researchers have investigated the anti-cancer activities of tocotrienols[10] and rice brain is a good source of antioxidants like tocopherols and tocotrienols.

Rice are rich from some minerals and potassium (K), manganese (Mn), copper (Cu), iron (Fe), zinc (Zn).

Given that it is a complicated carbohydrate, it is the primary energy source for more than half of humanity. Rice may additionally contain significant amounts of fibre, vitamins, iron, and manganese, which depending on the strain. In order to combat stunted growth, it can therefore be quite important. Fast and instantaneous energy delivery, regular bowel movements, blood sugar stabilisation purposes, and provision of the body using an indispensable supply of vitamin B1 are just a few of the health advantages of rice.

It also helps with skin care, heart health, and resilience to high levels of cholesterol and diarrhoea. To treat beriberi, gastrointestinal and skin inflammation, traditional medicine has employed rice.

Lohitaka, a red rice type, has excellent therapeutic qualities. Additionally, it enhances vision. In the practise of the ancient wisdom of A rice has medical benefits such as being bitter, tonic, and fattening.

Brown rice has more nutrition as compared to white rice. Brown rice also help people to control diabetes and sugar level in blood. Brown rice contains more fiber. It reduces the risk of heart diseases and stroke.

Method can aid in reducing swelling, relieving pain, and fostering healing. In fact, rice therapy is commonly employed. After injuries to the ankle, knee, or joint, inflammation and pain commonly develop. Furthermore, there is the well-known rice remedy for performers and sports health practitioners.

• **Medicinal values and properties**

The most widely used and extensively researched rice product is rice bran oil. RBO has a nice mild nutty flavour and a moderately sweet neutral taste. It is a pale yellow, transparent, and odourless substance. Unsaturated fatty acids can be found in large quantities in vegetable oils.

Lower likelihood of long-term conditions, notably heart conditions, is an added advantage of brown rice eating.

Anthocyanin pigment, phytochemicals, protein, and vitamins are particularly abundant in black rice. Black rice has a reputation for being anti-inflammatory. Antioxidants are essential for improving memory and boosting the immune system.

The strongest lowering power activity and anti-proliferative property were also demonstrated by njavara extracts in C6 glioma cells. According to the scavenging of free radicals like DPPH and NO, Njavara rice bran has a notably high concentration of polyphenolic compounds with outstanding antioxidant activity.

Red rice exhibits rice's ability to be antibacterial, antihyperlipidemic, antidiabetic, cancer prevention, and oxidative.

Figure 2: Medicinal values of different Rice.

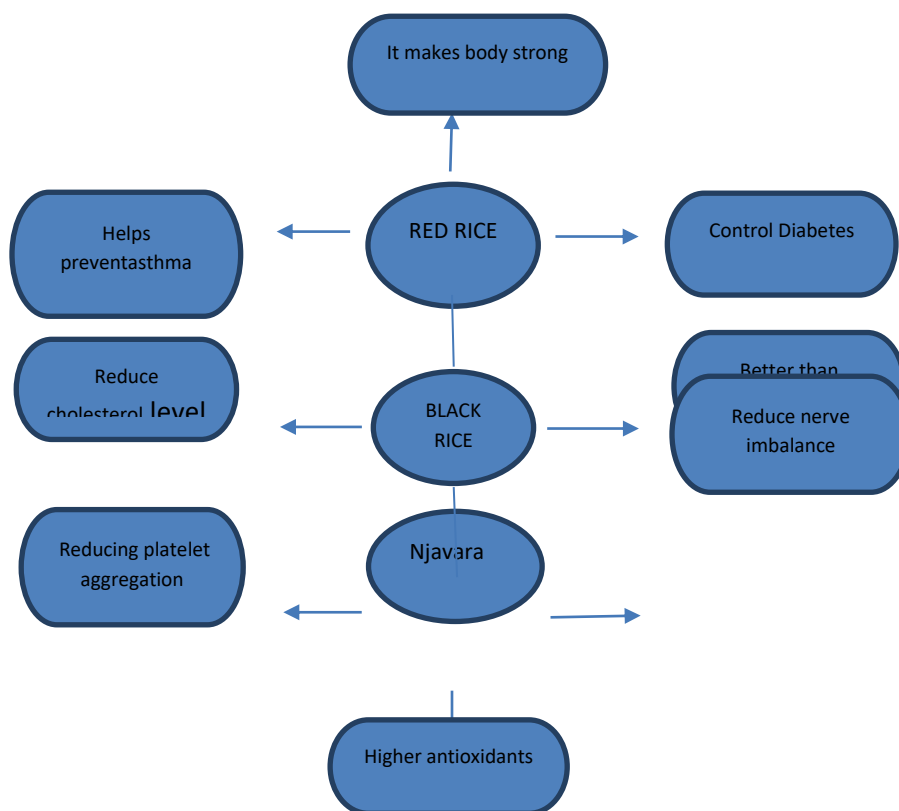


Table : 1 Varieties of Rice and its Medicinal Values.

S.No.	Rice Species	Medicinal Value	Antimicrobial Observation	Reference
1	Red Rice	Vaata, Pitta and Kapha.	Powerhouse of antioxidants, zinc, calcium, iron which play a crucial role in strengthening the body	Hegde, S., et al. [11]
2	Basmati	Useful in reducing the incidence of life style related diseases	rich in minerals (iron and zinc) and polyphenols and have antioxidant properties.	Amudha, K., et al. [12]
3	Brown rice	Appetite control and weight loss due to higher fiber and can reduce the risk of metabolic disorders, cardiovascular diseases, and some types of cancer	antioxidant, anti-diabetic, anticancer, neuroprotective, and cholesterol lowering effects. Antioxidants like anthocyanins, proanthocyanidins, tocopherols, carotenoids	Malabadi, R. B., [13]
4	"Laicha"	Its unique property to prevent "Laicha" disease (skin infection)	-	Das, G. K., et al. (2001). [14]
5	Rice Bran	Control of chronic disease	Polysaccharides	Chaudhari, P. R., et al. [15]

Uses of Rice

Rice used as staple food, contains lots of starch in it. Rice bran used as in breads, cookies, biscuits, cosmetics, detergents. Chaudhari, P. R.[7]It contains Vitamin.

Conclusion

Rice contains lot of nutrition and is a popular first aid treatment designed to help manage swelling, pains, and blood flow. Rice is not the preferred treatment for an acute athletic injury. Based upon the evidence, the only possible conclusion is that the use of rice is act as medicine like to healing wounds, and can cure many diseases. An injury may result in bruising and edoema in the region that was hurt. Overswelling could exacerbate the problem. Use Rice as immediate therapy for up to 72 hours following a bone break, strain, or other injury. It can reduce swelling and hasten the wound healing process.

Conflict of Interest:

We, the creators and authors of the present investigation, state that we have no rivals in mind.

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