

Global Warming Increases Arsenic in Rice

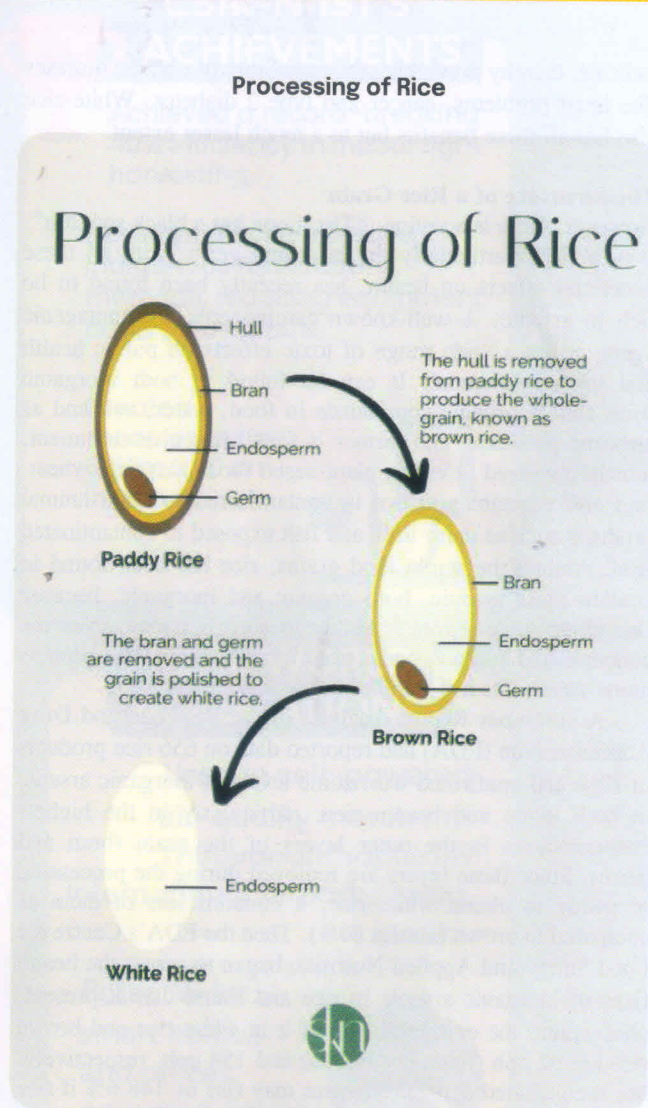
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THE Paris Agreement 2015 aims at limiting global warming to well below 2°C above the pre-industrial level, preferably pursuing efforts to arrest the increase below 1.5°C through reaching zero emissions by the year 2050. The goal has to be achieved through nationally determined contributions, where each country can set its own emission reduction target. The impact of exceeding temperatures on our environment and ecology have already become apparent in the forms of many devastative natural calamities — beginning from the increased risks of extreme weather events like intense heatwaves, droughts, floods, storms, rising sea levels that threaten coastal communities and marine ecosystems, disruptions of other ecosystems leading to habitat loss, biodiversity decline and shifts in species distribution, acidification of oceans causing harm to marine life, reducing agricultural land and water resources and enhancing health problems like heat strokes and spread of many diseases. Now, a new dimension, more dangerously linked to our day-to-day life, has been added to it by the discovery that global warming has been enhancing the levels of arsenic, a highly toxic substance, in rice.

Rice (*Oryza sativa L.*) is a staple food for more than half the population of the world, especially in Asian countries like China, India, Indonesia, Japan, Vietnam, Thailand, Philippines, Bangladesh, Myanmar and Malaysia, African countries like Liberia, Guinea-Bissau, Madagascar and Senegal as well as the North and South America.

In all these countries, more than 7000 varieties of paddy with different types of grains and nutritional compositions are grown. Rice, the edible part, is obtained by dehusking it, which is done mainly in two different ways. In one, the bran layer along with the germ is removed completely to obtain what is called white rice, and in the other, these are retained to produce brown rice.

Usually, the former has a greater consumer preference, while the latter is considered to be more nutritive (Table), because of its higher contents of dietary fibre, protein, lipid rich in HDL (High Density Lipid, known as “good cholesterol”) and micronutrients like magnesium, iron, zinc, phosphorous, niacin and vitamin B6. It also has a lower glycemic index,



making it beneficial for type 2 diabetes. Besides, it reduces the probability of heart attack and being overweight. The bran and germ of brown rice are particularly rich in many powerful antioxidants, which are capable of neutralising harmful free