



New Green Algae species isolated from Joshua Tree National Park California.



A desert strain of green algae was isolated from Joshua Tree National Park in southern California. Morphologically this strain is similar to *Pseudomuriella* and *Rotundella*. The alga exhibits several unusual genomic features. The strain is concluded to be placed into a new species and genus in the class Chlorophyceae and the proposed name is *Johansenicoccus eremophilus*. [1]

Blink and you'll miss these plants shooting their seeds.



The witch hazel plants show a surprising seed dispersal method. When the plants are ready to disperse their seeds, the woody seed capsules split open, pressure builds up and eventually the seeds shoot out like a bullet fired from a rifle, hitting 30 feet per second in less than five milliseconds. This study not only unveils the fascinating mechanics of seed dispersal in nature but also hints at potential applications in robotics, leveraging these natural springs for innovation. [2]

The oldest and fastest evolving moss in the world might not survive climate change.



The world's oldest and fastest-evolving moss, *Takakia* dating back 390 million years, faces a grim future due to climate change.

Scientists have sequenced its DNA for the first time, and studied how climate change is impacting the moss. Predictions suggest it may survive only 1,000-1,500 square kilometres globally by the end of the 21st century. This ancient moss offers valuable insights into our planet's history and future. [3]

Gene-edited Mustard: less spicy, more useful.

Indian scientists have developed a genetically-edited mustard using CRISPR/Cas9 gene editing. The glucosinolate transporter (GTR) genes were deactivated, in the 'Varuna', a high-yielding variety of Indian mustard. Thus, resulting in a significant reduction in glucosinolate levels within the seeds thereby showing higher amounts in the leaves and the walls of the pods. This increased accumulation of glucosinolates in the leaves and pods plays a crucial role in increasing the plant's ability to resist fungal and insect pests. [4]

REFERENCES:

- [1] *Plant Ecology and Evolution*, (2023) *Johansenicoccus eremophilus* gen. et sp. nov., a novel evolutionary lineage in Chlorophyceae with unusual genomic features.
- [2] Duke University. (2023, August 23). Blink and you'll miss these plants shooting their seeds.
- [3] Cell Press. (2023, August 9). The oldest and fastest evolving moss in the world might not survive climate change.
- [4] *Plant Biotechnology Journal* (2023) Targeted editing of multiple homologues of GTR1 and GTR2 genes provides the ideal low-seed, high-leaf glucosinolate oilseed mustard with uncompromised defence and yield.
- [5] University of Leeds. (2023, August 14). Making plant-based meat alternatives more palatable.

Making plant-based meat alternatives more palatable.

Plant based alternatives to meat is a very dry and astringent feel when eaten. To bring about this change scientists created plant protein **microgels**, which gives juicy feel and hydration when consumed. Without adding a drop of fat, the gel resembles the lubricity of 20% fat emulsion and can be used as replacement of fat in foodstuffs. This will not only reduce people's reliance on animal products for protein intake but will provide them a healthy, palatable and sustainable food. [5]

Magical millets for good health

Millets are called as "Nutri cereals" due to their high nutritional value. They are oldest crops known to humans and can grow in adverse weather conditions. The Government of India proposed the year 2023 as the "International year of millets" to raise the awareness about its health benefits and boost millet production. India produces more than 170 lakh tonnes of millets per year and largest producer of millet in the world.

Finger millet (Ragi)

Botanical name - *Eleusine coracana*

It is a fantastic source of natural calcium and strengthen bones in growing children. It is also called an orphan crop with a potential to alleviate the calcium deficiency in the semi-arid tropics of Asia and Africa. [1]



Foxtail millet

Botanical name- *Setaria italica*

It is rich source of fiber, protein, zinc, magnesium, iron and calcium. It helps in smooth functioning of nervous system, slows the development of Alzheimer's disease. The genome sequence of the foxtail millet has been utilized for comparative functional genomics studies of other C4 cereals and millets. [2]



Pearl millet

Botanical name - *Pennisetum glaucum*

It is high source of protein and fiber. It is gluten free and rich in folic acid and prevents anaemia. Phenolics present in the pearl millet is known for their antioxidant and anti-inflammatory properties, and they play an important role in maintaining our health and prevent chronic diseases. [3]



Kodo millet

Botanical name - *Paspalum scrobiculatum*

It is rich in iron content and helps in anaemia. They are suitable for people who are gluten intolerant because they don't contain gluten. It has a higher level of lecithin, which is important for the health of the neurological system. [4]



Sorghum millet

Botanical name - *Sorghum bicolor*

It is also known as "King of millets". It is rich in fiber and is great food for diabetics. In tropical countries such as South Africa, the use of sorghum millet, in quail diets can serve as ideal alternatives as they have relatively comparable energy values as maize. [5]



REFERENCES

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3. Vijay B et al, 2023, The agriculture magazine, vol 2, Issue 4.
4. Neha S. et al, 2023, Nutrient rich Kodo millet, importance and value addition: An overview. The Pharma Innovation Journal, 12(6): 3713-3719.
5. Caven M. M. et al, 2023, Sorghum, millet and cassava as alternative dietary energy sources for sustainable quail production – A review. Front. Anim. Sci., 23.