AGRI MAGAZINE
(International E-Magazine for Agricultural Articles)
Volume: 02, Issue: 06 (June, 2025)
Available online at http://www.agrimagazine.in

Nutritional Value of *Trichoderma*

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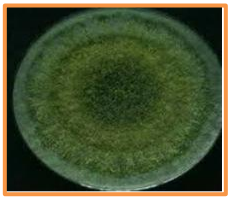
Trichoderma is a genus of fungi known for its role in agriculture as a biocontrol agents and its potential in enhancing the nutritional value of various substrates. While *Trichoderma* itself is not typically consume directly, its application in processing agricultural by products can lead to products with improved nutritional profiles.



Nutritional Compostion of *Trichoderma*

NUTRIENT	APPROXIMATE VALUE
Crude protein	40-60g
Crude Fat	3-6g
Crude Fibre	5-12g
Ash	6-10g
Carbohydrates	20-35g
Moisture	85%(in wet biomass)
Energy	300-350 kcal

Key Aspect of Nutritional Value of *Trichoderma*

Enhanced Nutrient Uptake: *Trichoderma* species can improve the uptake of both macronutrients (like nitrogen, phosphorus, and potassium) and micronutrients by plants. They achieve this by:

Increasing root exploration and development: *Trichoderma* can promote root growth and development, leading to a greater ability for plants to explore the soil and absorb nutrients.

Mobilizing insoluble nutrients: *Trichoderma* can release organic acids and produce enzymes that solubilize phosphorus (P) and other nutrients, making them available for plant uptake.

Micronutrient Solubilization: *Trichoderma* plays a crucial role in making micronutrients more accessible to plants. They can:

Acidify the rhizosphere: By releasing organic acids, *Trichoderma* lowers the pH of the soil surrounding the roots, making micronutrients more soluble.

Produce siderophores: Siderophores are molecules that chelate iron (Fe) and other metal ions, making them more accessible to plants.

Reduce oxidized metal ions: *Trichoderma* can reduce oxidized forms of metal ions (like Fe3+ and Cu2+) to their more easily absorbed forms.

Impact on Photosynthetic Pigments: *Trichoderma* can stimulate the production of chlorophyll and carotenoids, which are essential for photosynthesis.

Nutrient Enhancement through *Trichoderma*

1. Cassava peel fermentation: Submerged fermentation of cassava peel with *Trichoderma viride* resulted in a significant increase in protein content from 4.21% to 37.63%, along with improvements in true protein, fact, fiber and ash content. This process also reduce starch level, making the peel more suitable for animal feed or other applications.

2. Cassava Residue Enrichment: Fermentation of cassava residue use in *Trichoderma* led to an increase in crude protein content from 5.15%-6.37%.Supplimenting with nutrients like Urea futher enhanced Protein content, reaching upto 12.5%.

3. Date Pit Degradation: Degradation of Dates pits of *Trichoderma* improved nutritional compostion, increasing protein content to 5.56%, Crude Fat 7.2% and Total Carbohydrates to 87.2%. Additional the process enhanced Antioxidants.

4. Lentil Bio-fortification: Inoculation of lentil plants with various *Trichoderma* strains and their bioactive matabolites resulted in increased uptake of micronutrients like iron and zinc, leading to enhanced seed germination and nutrient yield this approach holds potential for natural biofortification of crops addressing micronutrient deficiencies.

Conclusion

While *Trichoderma* fungi are not consumed directly their application in processing agricultural products can significantly enhance nutritional value of these materials. This biotechnological approach offers a sustainable method to improve the quality of food and feed, contributing to better nutrition and reduced waste.

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