# Comparative Studies of Nutritional values of Rough Rice (*Oryza sativa* ) And Jangli Rice(*Echinocholacolona*)


## Abstract

Food is necessary for growth and health.Carbohydrate, protein and fat are three main types of macronutrients .-Vvitamins and minerals are two main micronutrients. All macro and micro nutrients should be taken in adequate and balanced amount. Any one taken in large amount orlow amount can cause disease or malnutrition.

Comparative account of nNutritional values of grains of *Oryza sativa* and *Echinocholacolona*are was done and discussed

inthe present paper.*Oryza sativa* is staple food in East India, North India and South India .

In West India (specially Rajasthan ),*Triticumaestivum* , *Pennisetumglaucum* ,*Sorgum bicolor* ,*Hordeum vulgare*,*Cicer arietinum* are taken as food . During fast,*Echinocholacolona* *Fagopyrumtataricum* , *Amaranthus* ,*Eleocharisdulcis* are taken . Present study found *Echinocholacolona* more nutritious on the ground of having higher values of protein, amino acids, some essential amino acids like phenylalanine, arginine, leucine and unsaturated fats, and fibercontent while low in carbohydrates. Study also found higher levels of mineralsin E. colona. But some important components like lysine and methionine and vitamin B were found at lower levels in E. colona than O. sativa. As E. colonais one of the food eaten by Comparative studies of nutritional values of *Oryza sativa* and *Echinochola colona* are done in the present paper.

Indian Himalayan saints observe during fast and eat selected food during fast . period and might be helping These saints aresaints in their

disease-free andlive long livesfe. Thus, we recommend using E. colona as one component of nutritious diet. Now a days world is suffering from Corona virus vegetarian diet and fast diet can prevent this .


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## *Introduction*

*Oryza sativa*belongs to family *Poaceae* and *Echinochloa*also belongs to family *Poaceae* .

Common name of first is Rice and second one is jangalirice .

*Oryza sativa* is carbohydrate rich diet and *Echinochloacolona* have both essential and non essential aminoacidsin sufficient amount.

Nutritional values of *Oryza sativa* and *Echinocholacolona* are discussed in the present paper. *Echinocholacolona* is taken during fast in India and *Oryza sativa* is rice taken daily with food.

## Methods

100 grams of Oryza sativa and 100 grams of Echinocolacolonagrainswere taken dried and powdered.Data ~~were~~ was analysed with the help of TEM and Chromatography manager software.

## Observations and Results

Nutritional values ofgrains of *Oryza sativa* and *Echinocholacolona* were following :

| S. No. | Nutritional Value | *Oryza sativa~~(mg /kg)~~ (g/kg)* | *Echinocholacolona~~(mg / Kg)~~ (g/kg)* |
|---|---|---|---|
| 1. | Protein ~~(g Nx5.95)~~ | 7.2 | **10.7** |
| 2. | Fat ~~(g)~~ | 2.1~~g~~ | 5.9~~g~~ |
| 3. | Fiber | 8-10.3 | **12.3** |
| 4. | Ash | 3-5 | **8.7** |
| 5. | Fiber crude | - | **12.3** |
| 6. | Carbohydrate | ~~65-74%~~**650-740** | ~~51%~~510 |
| 7. | Neutral detergent fiber | 3-4 | - |
| 8. | Sucrose | - | ~~**1.0%**~~10 |
| 9. | D Glucose | - | ~~0.4 %~~4 |
| 10. | D Fructose | - | ~~0.4%~~4 |

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**Comment [VK3]:** Expand TEM. If you can write more of this method, it will be better.

**Comment [VK4]:** Please mention if replicates and statistics used?

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For table, use uniform units and only one unit so to make comparisons easy between components and between plant materials.

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Please make uniformity in the values. I believe that values are in g/Kg of rice. If it is correct, then please make the correction.
Then all values which are entering under this, should be g per Kg only. Do not write different units for some values.

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| | | | |
|---|---|---|---|
| 11. | Thiamine | **0.27-0.6** | - |
| 12. | Riboflavin | **0.05-0.1** | - |
| 13. | Niacin | **3-5.7** | - |
| 14. | Tochopherol | **0.9-2** | - |
| 15. | Calcium~~(mg)~~ | ~~11-80~~0.011-0.080 | ~~0.05%~~0.5 |
| 16. | Phosphorus | 0.17-0.39 | ~~0.41%~~4.1 |
| 17. | Phytin | 0.19-0.38 | - |
| 18. | Iron | 1.3-6 | ~~108mg/kg~~0.108 |
| 19. | Zinc | 1.7-6 | 50 |
| 20. | Glycine | - | 2.7~~g~~ |
| 21. | Alanine | - | 10.4~~g~~ |
| 22. | Serine | - | 4.8~~g~~ |
| 23. | Threonine* | 4.6 | 3.4~~g~~ |
| 24. | Valine* | 7.1 | 5.9~~g~~ |
| 25. | Leucine* | 6.8-8.9 | **10.8~~g~~** |
| 26. | Isoleucine* | 3-4.5 | 4.8~~g~~ |
| 27. | Proline | - | **8.3~~g~~** |
| 28. | Tyrosine | 6.1 | 4.4~~g~~ |
| 29. | Tryptophan* | 2.0 | - |
| 30. | Phenylalanine* | 10.7 | ~~6.8%~~**68** |
| 31. | Cystine cysteine | - | 0.8~~g~~ |
| 32. | Methionine* | **4.6** | 1.7~~g~~ |
| 33. | Asparagine | - | - |
| 34. | Aspartic acid | - | 5.1~~g~~ |
| 35. | Glutamine | - | - |
| 36. | Glutamic acid | | 25.4~~g~~ |
| 37. | Arginine* | - | **41~~g~~** |
| 38. | Lysine* | **3.2-4.6** | 2.2~~g~~ |
| 39. | Histidine* | 1.6-2.7 | 2.2~~g~~ |
| 40. | Amino acid score | | |
| 41. | Saturated Fatty acid | - | ~~14/100g saturated~~140 |
| 42. | Monounsaturated fatty acid | - | **16** |
| 43. | Polyunsaturated fatty acid | - | **18~~.~~** |
| 44. | Minerals (Sulphur) | - | ~~0.1%~~1 |
| 45. | Magnisium | - | ~~.23%~~2.3 |
| 46. | Sodium | - | ~~.01%~~0.1 |
| 47. | Potasium | - | ~~0.3%~~3 |
| 48. | Magnese | - | ~~28mg/kg~~0.028 |

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| | | | |
|---|---|---|---|
| 49. | Copper | - | ~~4mg/kg~~0.004 |
| 50. | A~~l~~luminium | - | ~~88mg~~0.088 |

Star (*) Represent essential amino acids

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## Discussion

Although *Oryza sativa* is eaten more in comparison to *Echinocholacolona* , later ~~is more~~was found to be more

nutritious. Protein and fat contents were more in *E. colona*. *Unsaturated fat was detected only in E. colona. Some amino acids contents were found higher in E. colonaand essential ~~,~~amino acids like phenylalanine, arginine, leucine were found higher in E. colona but lysine and methionine were higher in O. sativa.* Fiber content ~~were also more in~~was found higher in E. colona and fibre crude was detected only in E. colona. Ash content was found higher in E. colona but carbohydrates were higher in O. sativa. Mineral content was appreciably higher in E. colona but vitamin B content was higher in O. sativa.

~~*Echinochloa colona* ,Ash and crude fiber were less in *O.sativa*. Value of carbohydrate were more in O.sativa. Vitamin B were negligible in *E. colona*.Minerals ,nutrients and Aminoacids were abundant in E.colona.~~

## Conclusion

Although *Oryza sativa* is nutritious,*Echinocholacolona* is more valuable having more e~~E~~ssential andnon essential amino acids and m~~M~~inerals.Protein content is more in *Echinocolacolona.* A~~m~~mount of fat and fibers are also more in *Echinocholacolona. Aspartic acid* , *g~~G~~lutamic* acid , and a~~A~~rginine are present in *Echinochloacolona* and absent in *Oryza sativa*.*Glycine*, *a~~A~~lanine* and *serine* are present in *Echinochloacolona* and absent in Oryza sativa.

Minerals like sodium, p~~P~~otasium,m~~M~~agnesium, calcium, phosphorus, sulfur and copper are present only in *Echinochloacolona*or present higher in *Echinochloacolona*

~~and absent in *Oryza sativa*~~.*Thus, Echinocholacolona* is having more nutritional values.Indian Saints from Himalayas eat less, observe fast for most of the time and eat Amaranthus, Echinochloacolona, Fagopyrumesculentum, Trapa, vegetables and fruits. They do not suffer

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fromdiseases and live long life.

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