

**Dr. G.V. Satyavati sponsored**  
**IASTAM Short Term Research Project -**  
**Comparative Study of Different Processing Methods on Barley (Yava),**  
**an Indigenous Cereal for its Effective Use in Metabolic Diseases**

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Barley (Yava) is an ancient indigenous cereal reported in Ayurvedic literature to be used in metabolic diseases like obesity and diabetes. These claims in Ayurveda has also been validated using in vitro, in vivo and clinical studies. In spite of having substantial therapeutic potential, it is not commonly consumed as its relative counterparts like oats in the Indian diet though few products of barley are available in the market. The are issues like public perception as non- food grain, low functional gluten, poor palatability (as hull contains tannic acid which gives a bitter taste) and high ash and raw fiber content which restrict its use as food grain. Interestingly, Ayurveda describes various processing methods to convert barley in palatable form like pearling, dry roasting, roasting with ghee, fermenting, soaking in herbal decoction/s followed by drying etc. There are no scientific studies available on these methods to ascertain whether these methods actually overcome the drawbacks listed above and at the same time maintain/improve the therapeutic potential of the barley.

In the present project, barley flour was processed by 3 different methods viz. roasting, roasting with ghee and soaking in Triphala decoction. All these processed

varieties were analyzed using different parameters such as proximate composition, biological activity (anti-oxidant and anti-glycation potential),  $\beta$ - glucan estimation followed by permeability study (Franz cell diffusion) and were compared with each other as well as with the unprocessed barley flour.

All three processed forms showed variation in physicochemical & biochemical parameters. The organoleptic evaluation revealed reduction in bitterness of the plain Yava after processing indicating improved palatability. The anti-glycation activity was found improved in all 3 processed forms though the one processed with Triphala decoction showed the best activity. The anti-oxidant activity did not show much alteration due to any of the processing methods.  $\beta$ - glucan concentration was high in roasted yava. The permeability was also found high in the same sample and hence can be used for therapeutic purpose. These preliminary findings however need to be confirmed.

The best form (roasting) may be evaluated for acceptability and tolerability along with efficacy in clinical studies.