

Evaluation of Goji By-Product as a Value-Added Ingredient for the Functional Food Industry

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Abstract : Goji berry (*Lycium barbarum*) is a member of the family Solanaceae which is grown widely in China, Tibet, and other parts of Asia. Its fruits are 1-2 cm-long, bright orange-red ellipsoid berries and it has a long tradition as a food and medicinal plant. Goji berries are believed to boost immune system properties. The berries are considered an excellent source of macronutrients, micronutrients, vitamins, minerals and several bioactive components. Studies have shown effects of goji fruit on aging, neuroprotection, general well-being, fatigue/endurance, metabolism/energy expenditure, glucose control in diabetics and glaucoma, antioxidant properties, immunomodulation and anti-tumor activity. Goji berries are being used to prepare Goji beverage, and the remaining solid material is considered as by-product. The by-product is currently unused and disposed as waste despite its potential as a value-added food ingredient. Therefore, this study is intended to evaluate nutritional properties of Goji by-product and its potential applications in the baking industry. The Goji by-product was freeze dried and ground to pass through 1 mm screen prior to evaluation and food use. The Goji by-product was found to be a rich source of fiber (54%) and free phenolic components (1,307 µg/g), protein (13.6%), ash (3.3%) and fat (10%). Incorporation of the Goji by-product in muffins and cookies at various levels (10-40%) significantly improved the nutritional quality of the baked products. The baked products were generally accepted and highly rated by panelists at 20% replacement level. The results indicate the potential of Goji by-product as a value-added ingredient in particular as a source of dietary fiber and protein.

Keywords : Goji, by-product, phenolics, fibers, baked products

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