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Nutritional composition of dehydrated *Kachnar* leaves (*Bauhinia purpurea*) powder

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Abstract
The main aim of this study is to analyze the nutritional and anti-nutritional composition and antioxidant content of the dehydrated *Kachnar* leaves, for proximate analysis standard methods of AOAC (2007) were used. It was found that dehydrated *Kachnar* leaves (*Bauhinia purpurea*) were a rich source of many nutrients. Moisture in dehydrated leaves was found to be 8.83%, ash was found to be 4.9g/100g, carbohydrate content in dehydrated leaves was found 66.82 g/100g, protein content was 15.19g/100g, fat content was 4.15g/100g, calcium and iron was found to be 240mg/100g and 21.73 mg/100g respectively. Vitamin C was found very less which was 4.5 mg per 100 g. Crude fibre in the leaves was found to be 4.26g/100g, and energy was found to be 365 kcal/100g. Polyphenols was found to be 119.5mg/100 g. Phytate and Oxlate content found in *Kachnar* leaves were 4.8mg/100g and 2.5mg/100g.

Keywords: Nutritional and anti- nutritional content, *Bauhinia purpurea,* proximate analysis

1. Introduction
In India, over 3600 plant species have been considered useful in traditional system of medicines like Ayurveda. A country like India is very much suited for development of drugs from medicinal plants. India has a rich heritage of knowledge on plant based drugs both for use in preventive and curative medicines. Numerous studies have been carried out on extracts of various natural products for screening antimicrobial activity (Kumar and Rathinam, 2009) [4]. Medicinal plants, since times immemorial, have been used in virtually all cultures as a source of medicine. The widespread use of herbal remedies and healthcare preparations, as those described in ancient texts such as the Vedas and the Bible, are obtained from commonly used traditional herbs and medicinal plants (Agarwal, 2005) [2].

Bauhinia purpurea (family: Caesalpiniaceae) is a medium sized, evergreen, ornamental tree found throughout India. The leaves are rigid subcoriaceous, glabrous and shallowly cordate. The purple colored flowers of the species distinguishes it specifically from other species of *Bauhinia*. It is presently being used for ailments such as sores, wounds, diarrhea, dropsy, pain, rheumatism, convulsions, delirium, septicemia and so on. Its decoctions are recommended for ulcers as a useful wash. The aerial parts of the plant are reported to contain flavanone glycosides, foliar flavonoids, butyl-3-hydroxy flavanone, amino acids, phenyl fatty ester, lutine and β- sitosterol *Bauhinia purpurea* L. (family Fabaceae) is one of the plants that has gained interest among researchers as a potential new source of medicinal agents. Extracts of *Bauhinia purpurea* have been reported to possess various pharmacological activities (Mazumder *et al.*, 2012) [5].

The young leaves of various *Bauhinia purpurea* are eaten as a side dish with rice, or used to flavor meat and fish. Sometimes the seeds are edible. The leaves are administered as cough medicine. *Bauhinia purpurea* are rich in polyphenolics and are known for its medicinal properties. It has also been reported to contain high phenolics which are usually referred to as anti-quality factor for ruminants nutrition because of their affinity with proteins. As a part of our program to investigate the structure activity relationship of polycyclic phenolics and implication in rumen, we herein report the isolation of 2 new dimeric flavonoids characterized on the basis of spectral evidences. From the leaves of *Bauhinia purpurea* (Yadav and Bhadoria, 2005) [7].

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2. Materials and Methods

Chemical analysis for proximate composition of moisture, ash, fat, protein and fibre of dehydrated *kachnar* dry leaves powder and best treatment of developed food products were done by using standard methods of AOAC (2007). Iron was determined by using calorimetric method and calcium was determined by titration method respectively. Vitamin C was determined by 2, 6-Dichlorophenol dye method. Total carotene was assessed by the method of Ranganna (2001). Polyphenols by Folin-Ciocalteu phenol method and antioxidant, by DPPH Radical Scavenging Method (Brand *et al.,* 1995) [3].

3. Results and Discussion

The experiment was conducted in the Nutritional Research Laboratory, Department of Foods and Nutrition, Ethelind School of Home Science, Sam Higginbottom Institute of Agriculture, Technology and Sciences (Deemed to be University) Allahabad, U.P.

From proximate analysis, it was found that dehydrated *Kachnar* leaves *(Bauhinia purpurea)* were a rich source of many nutrients. Moisture in dehydrated leaves was found to be 8.83%, ash was found to be 4.9g/100g, carbohydrate content in dehydrated leaves was found 66.82 g/100g, protein content is 15.19g/100g, fat content is 4.15 g/100g, calcium and iron was found to be 240mg/100g and 21.73 mg/100g respectively. Vitamin C was found very less which is 4.5mg/100g. Crude fibre in the leaves was found to be 4.26g/100g, and energy was found to be365 kcal/100g.Polyphenols was found to be 119mg/100 g. Phytate and Oxlate found in *Kachnar* leaves is 4.8mg/100g and 2.5mg/100g.

The result is supported by the findings of Salah and Yagi (2011) [6] analyzed of the proximate, nutritionally valuable minerals and amino acids compositions in pods and leaves of *Prosopis chilensis* were carried in dry leaves. Results observed, 12.5g/100g protein, 53.56g/100g carbohydrate, 7.5g/100g crude fibre, 4.9g/100g ash, 6.1 percent moisture respectively. The results indicated that *P. chilensis* could be a good supplement for some nutrients.

Table 1: Proximate analysis, minerals and vitamin content of dehydrated *Kachnar* leaves (*Bauhinia purpurea)* powder (per 100g).

Nutrients	Nutritive value
Moisture (%)	8.83
Ash (g)	4.9
Protein (g)	15.19
Fat (g)	4.15
Crude fibre (g)	4.26
Calcium (mg)	240
Iron (mg)	21.73
Vitamin C (mg)	4.5
Energy (kcal)	365
Carbohydrate (g)	66.82
Total carotene (µg)	1833

4. Conclusion

On the basis of findings, it is concluded that dehydrated composite leaves powder of *Kachnar* leaves was found to be rich in iron, calcium, carbohydrate, energy and it can be successfully incorporated in the preparation of the products like *Idli* and *Kachori*. Sensory evaluation showed that the treatment T$_2$ (semolina+*kachnar* leaves in the ratio of 90:10) was the most acceptable in Idli and in Kachori, showed that the treatment T$_2$ (wheat flour+*kachnar* leaves in the ratio of 90:10) was found most highly acceptable. The content of iron, calcium, carbohydrate, energy increased significantly in *Idli* whereas, in *Kachori* ash, protein, iron, calcium, carbohydrate and energy were found to be highest in the best treatment. The antioxidant content such as total polyphenol and anti-radical scavenging activity were also increased significantly in *Idli* and *Kachori*. As the Incorporation level of the dehydrated *Kachnar* leaves increased, the cost of prepared products decreased.

5. Recommendations

- Incorporation of dehydrated leaves powder will enhance the nutritive value of traditional recipes by improving their micronutrient content.
- Incorporation of dehydrated leaves powder products can be helpful for providing variety in the daily dietary in addition to their nutritional benefits.
- *Kachnar* (*Bauhinia purpurea*) leaves are medicinal plant which is commonly used in the treatment and prevention of specific aliments and diseases.

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