

## Food Technology 2019: Nutritional profile of some selected pulses of sindh Pakistan- Aijaz Hussain Soomro- Sindh Agriculture University

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**Statement of the Problem:** Pulses are one of healthiest foods due to its nutritional properties and protein quality which is strongly influenced by its amino acids composition. The pulses which are underutilized have tremendous potential for commercial exploitation and their frequent consumption has been associated with lower risk of cardiovascular and coronary heart diseases. Therefore, this study was carried out to evaluate the nutritional profile of selected pulses at Institute of Food Sciences and Technology, Sindh Agriculture University Tando Jam.

**Methodology:** Different pulses such as chickpea white, chickpea brown, split chickpea; red lentil, yellow lentil, white lentil, red kidney bean and black eyed bean were analysed for the proximate composition, fat soluble vitamins (A, E &  $\beta$ -carotene) and amino acid profile.

**Findings:** The results of proximate analysis showed that these pulses contains high protein content ranged from 18.11% to 23.79%, ash content ranged from 2.33% to 3.90%, pulses has very low lipid content ranged from 0.74% to 4.84%, but pulses are high in carbohydrate ranged from 59.75% to 65.75%. Due to low fat content, fat soluble vitamins also lack in pulses, vitamin A was not found in all the samples, vitamin E was present in chickpea white, chickpea brown and split chickpea in a very minute quantity of 1.86, 1.56 and 0.65 mg/100g, respectively,  $\beta$ -carotene precursor of vitamin A was found in all samples ranged from 0.083 to 0.545 mg/100g. The amino acids include essential amino acids leucine found in chickpea white 3.40g/100g and lysine 4.29g/100g in kidney bean. Non-essential amino acids aspartic and

glutamic acid was higher in black eyed bean 2.667 and 5.168 g/100g, respectively, while the arginine was found 4.330 g/100g in white lentil. Sulphur containing amino acid cysteine found in excellent quantity in yellow lentil 8.427 g/100 and in black eyed bean 4.543 g/100g.

**Conclusion & Significance:** It is concluded that, pulses are excellent protein sources and could be used to decrease the protein deficiency prevailing in the country.

Pakistani wheat varieties are grown over a wide agro-climatic range and as such are anticipated to exhibit yield and quality differences. It is therefore necessary to investigate the nutritional status of wheat varieties in terms of biochemical and physiochemical characteristics available for food and nutritional purposes in Pakistan. The result shows that wheat grains of different varieties contain a net protein level of 9.15%-10.27%, 2.15%-2.55% total fats, 1.72%-1.85% dietary fibres,  $77.65 \times 10^{-6}$ - $84.25 \times 10^{-6}$  of potassium and  $7.70 \times 10^{-6}$ - $35.90 \times 10^{-6}$  of sodium ions concentration,  $0.24 \times 10^{-6}$ - $0.84 \times 10^{-6}$  of phosphorus, 1.44%-2.10% ash, 31.108-43.602 g of thousand grain mass (TGM) and 8.38%-9.67% moisture contents. This study is significant in providing an opportunity to explore the available wheat varieties and to further improve their nutritional excellence and also essential for setting nutritional regulations for domestic and export purposes.

In Pakistan, pulse production has stagnated over the past 70 years, caused by the absence of growth in area planted and yields. Consumption has increased steadily and imports have risen dramatically in re-

cent years. Concerned about this increase in imports, in 2007 the Pakistani Government stopped pulse exports by imposing a 35 per cent export tax.

This was done with the intent to secure domestic production for domestic consumption. Since that time, pulse exports have all but ceased and pulse prices have increased dramatically in level and variability, in contrast to other crops.

The Government also supports agriculture through subsidies on fertiliser, water and energy. These subsidies distort markets and prices and favour more fertiliser-intensive crop production over pulse production, which requires relatively less fertiliser. The Government implements a procurement price for wheat, which discourages pulse production by making pulses relatively less profitable and more risky to produce compared with wheat. We suggest that the Pakistani government remove the pulses export tax, phase out all agricultural subsidies, and remove the wheat procurement price. It should not implement a pulses procurement price. Instead, we suggest the

Government diversify sources of imports, encourage participation in open markets, investment into sustainable agricultural productivity growth (through infrastructure development, research, development and extension), and develop social protection programs to provide safety nets during economic and food crises.

**Result:** Pulses are edible seeds of legumes. The main pulses produced or consumed in Pakistan are chickpeas, mung beans, mash beans and lentils (Harrison et al. 2017a). These products are international traded, and are substitutes in production and consumption with wheat, rice, sugarcane, cotton and other cereals. Like these substitutes, pulses are a storable commodity. Two desirable characteristics of legumes are that they fix nitrogen (production benefit) and are high in protein (consumption benefit) compared with other vegetable crops (Harrison et al. 2017a,b). Popular pulse dishes are hummus, made from chickpeas, falafel, made from chickpeas or mung beans, and dahl, made from lentils.