

1624 ✓  
NUTRITIVE VALUE OF GREEN AND MATURE PIGEONPEA SEED

U. SINGH, R. JAMBUNATHAN, K.B. SAXENA and D.G. FARIS\*

Pigeonpea is mostly consumed in the form of cooked dhal (decorticated dry split mature seeds) along with cereals. In many countries pigeonpea like garden pea is consumed as green seed collected 25 to 30 days after flowering (Singh *et al.* 1984). In general, large seeded varieties are preferred for this purpose. In some Caribbean and Latin American countries green pigeonpea is processed by canning or freezing. At ICRISAT nine genotypes differing in pod and seed coat colour were studied for the nutritional quality of green and mature seed.

Green seed had more protein than mature seed (Table 1). Although the starch content was higher in mature seed the digestibility of the starch in green seed was almost 50% higher (Singh *et al.* 1984). Glucose, fructose and sucrose were the predominant sugars in green seed and other results have shown that their concentrations decline as the seed matures. Up to 70% of the calcium in mature seed is lost when the seed coat is removed to make dhal. The iron content in green seed was significantly higher than that in mature seed.

TABLE 1. Mean values of various nutritional constituents of green and mature seed from nine pigeonpea genotypes.

Green/ Mature	Protein (%)	Starch (%)	Soluble sugars (%)	Seed coat (%)	Dietary fibre (%)	Calcium (mg/100 g)	Iron
Green	21.0	48.4	5.1	22.3	23.1	94.6	4.6
Mature	18.8	53.0	3.1	13.6	20.1	120.8	3.9
SD	0.50**	0.78**	0.18**	0.54**	0.60**	4.52	0.16**

The protein quality of green seed was better than that of mature seed in terms of protein content and digestibility and the levels of the important essential amino acids, methionine, cystine, and tryptophan (Table 2). The levels of protease and amylase inhibitors, which interfere with the protein and starch digestibilities respectively, are lower in green than in mature seed.

TABLE 2. Mean protein digestibility, antinutritional factor and important amino acid levels of green and mature seed of nine pigeonpea genotypes.

Green/ Mature	Protein digesti- bility (%)	Trypsin inhibitor (Inhibitor units/mg meal)	Chymo- trypsin inhibitor	Amylase inhibitor	Polyphe- nols (mg/g)	Lysine (g/100 g protein)	Met +Cys <sup>1</sup>	Trypto- phan
Green	66.8	2.8	2.6	17.3	8.6	6.9	2.7	0.9
Mature	58.5	9.9	3.0	26.9	10.6	6.7	2.2	0.8
SD	1.53*	0.55**	0.19	1.25**	1.10	0.09	0.15*	0.06

\*P < 0.05, \*\*P < 0.01 <sup>1</sup>Methionine + Cystine

Green pigeonpea seed is reported to have over three times more carotene than dhal and to have 250 ppm ascorbic acid compared with none in dahl (Gopalan *et al.* 1984). All these observations indicate that pigeonpea seed used green as a vegetable is nutritionally better than when it is used mature.

GOPALAN, C., RAMA SASTRI, B.V. and BALASUBRAMANIAN, S.C. (1984). Nutritive value of Indian foods. IIN, ICMR, Hyderabad, India. 204 pp.

SINGH, U., JAIN, K.C., JAMBUNATHAN, R. and FARIS, D.G. (1984). *J. Food Sci.* 49:799-802.

\*International Crops Research Institute for the Semi-Arid Tropics, Patancheru, India.