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Most of the people in developing countries are living below the poverty line and it is estimated that at least 500 million people in these countries suffer from chronic under nourishment (Proceeding of World Food Conference, 1976). Nearly two-third of the world's population fail to take food with sufficient calorific value (World Bank's Report, 1988).

The phenomenal increase in population during the last 25 years, has aggravated the world food crisis and there is a high possibility that the situation could worsen as the gap between the world's protein supply and population continues to widen (Egbe and Akinyele, 1990). The world food crisis has been and will continue to be a major obstacle to humanity. In the developing world, this crisis can only be overcome by increased food production (Hill, 1984).

Grain legumes provide the necessary protein requirements for people not capable of obtaining such from expensive animal protein sources like meat, poultry, egg and milk (Laurena et al., 1987). Seed products are our most important dietary sources of both energy and protein.

Information from nutrition point of view, on grains of wild species and wild progenitors of cultivated crops is relatively scarce. But with increasing interest in new food sources and in improved genetic diversity within domesticated lines the seeds of wild plants are now receiving more attention (Bewley and Black, 1985).

In this context, exploitation of tropical wild legumes including the legumes of tribal utility deserves timely and urgent attention (Janardhanan, 1990). In India certain legumes are known to be consumed by different tribal sects (Jain, 1981; Gunjatkar and Vartak, 1982; Janardhanan, 1990). The tribals in India are the indigenous people of the land. There are more than 450 tribal communities spread throughout India and the tribal population of the country constitutes about 7.76% of the total population (Census of India, 1981).
Information on the chemical composition of these potential protein sources and their possible utilization as human food is inadequate (Janardhanan and Rajaram, 1990). Recently several Indian tribal pulses have been subjected to chemical analysis and nutritional evaluation (Pant et al., 1974; Arora et al., 1980; Janardhanan and Lakshmanan, 1985; Prakash and Misra, 1987; 1988; Rajaram and Janardhanan, 1991 a,b,c; 1992 a,b; Mary Josephine and Janardhanan, 1992; Siddhuraju et al., 1992 a,b; 1993; Vijayakumari et al., 1993 a,b,c; Mohan and Janardhanan, 1993a,b,c).

Perhaps, due to the immense contribution of grain legumes to the amelioration of protein dearth, their endogenous content of a myriad of antinutritional factors has remained a subject of immense concern to the food chemists and nutritional biochemists (Aletor, 1987).

Antinutrients are those which interfere with the assimilation of nutrients contained in foods. Foods, particularly those of plant origin, contain a wide range of antinutrients. Some of the antinutritional factors like protease inhibitors, lectins, tannins, goitrogens, cyanogens, amylase inhibitors and antivitamin factors constitute the heat labile antinutritional factors (Liener, 1980); whereas toxic amino acids, alkaloids, cyanogenic glucosides, saponins, flavones, isoflavones and pyrimidine glucosides form the heat stable antinutritional factors (Nowacki, 1980).

Polyphenols of dry beans are known to decrease protein digestibility in animals and humans probably by making protein partially unavailable or by inhibiting digestive enzymes (Bressani and Elias, 1979; Jambunathan and Singh, 1981).

Numerous non-protein amino acids have been found in higher plants (Fowden, 1976) and their high concentrations particularly in seeds of legume species often make them toxic to consuming organisms, including man. L-DOPA (3,4-dihydroxyphenylalanine) is an unusual non-protein amino acid (Bell and Janzen, 1971; Dexenbichler et al., 1971). High level of L-DOPA in the uncooked seeds of Mucuna utilis has been implicated to be responsible for causing skin eruptions and increase in body temperature of consuming humans (Jebadhas, 1980).
Food legumes have long been known to contain a class of proteins which agglutinate the red blood cells. Phytolectins are toxic factors which interact with glycoprotein on the surface of red blood cells and bring about agglutination. These are highly sensitive to heat treatment (Grant et al., 1983).

Phytic acid has antinutritional properties due to its ability to lower the bioavailability of minerals (Davies and Nightingale, 1975; Erdman, 1979; Nolan and Duffin, 1987) and forms a complex with proteins and inhibits the enzymatic digestion of proteins (Singh and Krikorian, 1982; Serraino et al., 1985).

The ability of cyanogenic glycosides in liberating hydrogen cyanide on hydrolysis is well documented. They are wide spread among plants (Hegnauer, 1977). The consumption of foods containing these toxic cyanogens could result in acute or chronic cyanide toxicity (Epechi, 1967).

The food legumes are also regarded, as notorious inducers of flatulence when they are consumed in large quantity. Oligosaccharides namely raffinose, stachyose and verbascose are involved in flatulence production in man and animals which is characterized by the production of high amounts of carbon dioxide, hydrogen and small amounts of methane gases (Rackis, 1975), abdominal rumbling, cramps, diarrhea and nausea (Steggerda, 1968).

To assess the overall quality of food grains an understanding of the extent of presence of the aforesaid antinutritional factors is imperative. Besides understanding the physiological role of these antinutritional factors, their impact on health also is essential. This fact in itself is a justification for the research being carried out to learn the significance of these factors which are usually associated with legume proteins. The aforesaid antinutritional factors may decrease the effective utilisation of proteins of the little known pulses including tribal pulses, which of late are used as nutritional supplements to rural diets or for other purposes (Bressani and Elias, 1979).

Hence in the present study an attempt was made to detect the antinutritional factors, total free phenols, tannins, L-DOPA (3,4-dihydroxyphenylalanine),
phytohaemagglutinating activity, phytic acid, hydrogen cyanide and oligosaccharides (raffinose, stachyose and verbascose), in selected tribal pulses such as Abrus precatorius, Bauhinia purpurea, Canavalia gladiata, Dolichos lablab var. vulgaris Mucuna monosperma (Kerala and Tamil Nadu germplasm), M. pruriens, Prosopis chilensis, Vigna aconitifolia and V. sinensis collected from different agroclimatic regions throughout India.

In India, soaking, cooking as such or after germination and roasting are the common traditional practices followed in case of legumes before consumption. Simple processings like cooking, autoclaving and germination have been shown to reduce the levels of these antinutritional substances in several legumes (Borhade et al., 1984; Kadam and Smithard, 1987). Suitable techniques/devises to remove or inactivate the antinutritional substances are essential to improve the nutritional quality of tribal pulses and make them acceptable as alternate sources of concentrated proteins.

And hence in the present study various processings/devises such as cooking, soaking in distilled water and salt water, dry heat treatment and autoclaving were made to understand to what extent the aforesaid antinutritional substances are reduced/eliminated in the above mentioned tribal pulses.