Introduction
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Inadequate availability and consumption of protein food coupled with both population explosion and urbanization result in Protein - Energy - Malnutrition (PEM) in developing countries including India. The PEM problem will remain if efforts are not made towards finding other available cheaper sources of protein (Prakash and Misra, 1988).

PEM is widespread (Waterlow, 1994). Malnutrition in its many forms - including undernutrition, specific deficiency nutrition and overnutrition - persists in virtually all countries world wide inspite of the general improvement in food supplies and health conditions and the availability of educational and social services. In 1995, it has been estimated that currently more than 200 million under five year-old children are malnourished. This means that more than 30% of the world's children aged under five years are still malnourished in terms of being underweight. Currently, over two-thirds (79%) of the world's malnourished children live in Asia (especially southern Asia); whilst 17% are in Africa and 3% in Latin America (WHO, 1995).

Using the WHO Global Database on Child Growth, the world wide magnitude of PEM has been reviewed by de Onies et al. (1993). The International Conference on Nutrition (ICN) held in December 1992, identifies the root causes of malnutrition as poverty, deprivation, social inequality, lack of education and growth of population out of proportion to the natural resource endowment (WHO, 1993; Ramalingaswami, 1995).

Malnutrition is widespread in India. Based on the studies undertaken by the National Nutrition Monitory Bureau (NNMB), the major nutritional deficiency diseases identified in India are PEM, vitamin A deficiency, iron deficiency anemia and endemic goitre. PEM is by far the most widespread nutritional problem affecting mainly children in the preschool age (1-5 years) particularly among the poor socio-economic groups of the population. Malnutrition affects the physical and mental well being of individuals (Devadas, 1993).

There is an ever widening gap between food supplies and population growth, particularly in the third world countries. The food shortage seems to be serious when per capita protein intake is considered (Amubode and Fetuga, 1984).

Plants are the predominant harvesters of solar energy and they constitute primary resources of carbohydrates, vitamins, proteins, essential fatty acids and utilizable energy for human food production.
Most of the world's population depends on approximately twenty different food crops which are generally divided into cereals, vegetables (including legumes), fruits and nuts. In the context of human PEM, the most important groups are cereal grains and food legumes, including oil-seed legumes (Young and Pellett, 1994).

Plant Genetic Resources for Food and Agriculture (PGRFA) are the biological basis of world food security and directly or indirectly support the livelihoods of every person on the earth (FAO, 1996). On a global basis, plants provide ≈ 65% of the world supply of edible protein (Young and Pellett, 1994) and about 80% of the protein consumed by the humans in developing countries comes from plants (Singh and Singh, 1992).

Grains and legumes are recognised as important sources of proteins, carbohydrates, minerals and B-complex vitamins (Bressani and Elias, 1980a). Legumes are some of the low price sources of protein - rich foods that seem to be important in alleviating PEM (Aykroyd et al., 1982). The food legumes are given high priority in world agriculture since they contribute about 40% of protein in the diets of the inhabitants of the tropics (Luse and Racie, 1979) and they are the potential source to fill the protein gap (Pinstup - Anderson et al., 1984). The proteins of cereal grains and food legumes supplement each other nutritionally because each is comparatively rich in amino acids in which the other is deficient (Khan and Eggum, 1978).

Pulses are being increasingly used as a source of protein in diets because of the prohibitive cost of protein of animal origin (Scrimshaw and Young, 1977). India has attained food security but not nutrition security as the production of protein rich pulses do not keep pace with the growing population. Besides there is a huge shortfall in the demand and supply of pulses (Sankaran, 1996).

Some of the wild nuts and seeds used as food in several parts of the world have considerable promise as protein source (Amubode and Fetuga, 1983). Information on the nutritional potential of wild species and wild progenitors of cultivated crops is relatively meagre (Haq, 1983; Janardhanan, 1990; Rajaram and Janardhanan, 1993b; Siddhuraju et al., 1993; Rajyalakshmi and Geenani, 1994).

In India, legumes constitute an important food stuff and are chief economic sources of protein in the diet (Kumar et al., 1991). Partly due to scarcity of conventional pulses and partly due to exorbitant cost of animal protein, several novel sources of protein that have hitherto not been employed in human nutrition are now being investigated (Yadav and Bharadwaj, 1971; Pant et al.,
With increasing interest in new food sources and in improved genetic diversity within domesticated lines, the seeds of wild plants, including the tribal pulses are receiving more attention (Bewly and Black, 1985; Maikhuri et al., 1991; Rajaram and Janardhanan, 1993b; Siddhuraju et al., 1993; Rajyalakshmi and Geervani, 1994).

The wild relatives of cultivated crops are actively considered for genetic improvement because they have beneficial genes for tolerance to environmental stress, pests and insects resistance and higher levels of nutrients; while cultivated species often have a very narrow genetic base and lack of genes for resistance to certain diseases. Wild species of several cultivated plants act as reservoirs for crop improvement including developing resistance to pests and pathogens (Ignacimuthu and Babu, 1987; Babu et al., 1988; Burden and Jarosz, 1989; Doney and Whitney, 1990; Lenne and Wood, 1991; Rajaram and Janardhanan, 1991c; Hodgkin and Debuock, 1992; Mary Josephine and Janardhanan, 1992; Siddhuraju et al., 1992a; 1994; Vijayakumari et al., 1993a; Frankel et al., 1995). Hence, the identification and introduction of such wild / little known grain legumes, including the tribal pulses throughout the tropical regions as well as their genetic improvement of the quality and quantity of protein would be a great contribution (Maikhuri et al., 1991; Rajaram and Janardhanan, 1993b).

In India, certain wild legumes are known to be consumed by different tribal sects (Jain, 1981; 1991; Gunjatkar and Vartak, 1982; Janardhanan, 1990; Rajaram and Janardhanan, 1993b; Siddhuraju et al., 1993; Borthakur, 1996; Radhakrishan et al., 1996; Sahu, 1996; Singh, 1996; Sinha, 1996). Tribals in India are the indigenous, autochthonus people of the land. They had settled in different parts of India long before the Aryans penetrated into India to settle down first in Kabul and Indus valleys (Roy Burmann, 1986). There are more than 550 tribal communities under 227 ethnic groups spread throughout India (Anon., 1994). Tribal population of India is 67.76 million, constituting about 8.08% of total population (Census of India, 1991). The different tribal sects live in the less disturbed forest areas.

The various tribal sects of India are repositories of rich knowledge on various uses of plant genetic resources which has hitherto remained untapped (Khoshoo, 1991). But of late, due to several developmental activities around tribal areas which are not related to their welfare, the tribal people are losing their traditional identity resulting in a loss of treasure house of knowledge on plant genetic resources (Shankar, 1995). In view of these developments, the UN declared the year 1993 as “International Year of Indigenous People” based on the recommendations of the Rio Earth Summit.
India ranks tenth among the plant rich countries of the world and sixth among the centres of diversity (Khoshoo, 1991). South India comprises the states of Tamil Nadu (1,30,058 sq.km), Kerala (38,863 sq.km), Karnataka (1,91,791 sq.km) and Andhra Pradesh (2,75,068 sq.km).

Among the 18 hotspots in the world, two are in India. They are Eastern Himalayas and Western Ghats (Khoshoo, 1996). The hill chain of Western Ghats recognised as a region of high level of biodiversity is under threat of rapid loss of genetic resources (Gadgil, 1996). The biodiversity nature of Eastern Ghats is meagre. Keeping these facts in mind, in the present study, the germplasm seed materials of *Canavalia*, *Cassia* and *Mucuna* have been collected from the natural stands of both Western and Eastern Ghats of South India.

The general factors for estimating the energy value of food is based on its protein, fat and carbohydrate contents (Atwater and Bryant, 1900). Information regarding the chemical composition and nutritional quality of Indian wild/tribal pulses is meagre (Prakash and Misra, 1987; 1988; Rajaram and Janardhanan, 1991b; Rajyalakshmi and Geervani, 1994; Mohan and Janardhanan, 1995b). Therefore, in the present study, an attempt has been made to estimate the contents of crude protein, crude lipid, crude fibre, ash, Nitrogen Free Extractives (NFE) (= total crude carbohydrates) and calorific value in the germplasm seed materials of tribal pulses such as *Canavalia ensiformis* DC., *C. gladiata* (Jacq.) DC., *Cassia floribunda* Cav., *C. obtusifolia* L., *Mucuna monosperma* DC ex Wight., *M. pruriens* (L.) DC. and *M. pruriens* var. *utilis* Wall ex Wight.

Legume seeds contain several thousand different proteins (Boulter and Derbyshire, 1971; Murray, 1984). While assessing the protein quality in legume seeds, it is imperative to fractionate the proteins based on solubility criterion into albumins, globulins, prolamins and glutelins. The protein fractions tend to differ from each other in amino acid composition. The relative proportion of each protein fraction in the seed determines the nutritional quality of the total seed proteins (Shewry et al., 1995). In the present investigation, the seed proteins are fractionated and separated based on solubility criterion.

Protein quality depends on the concentration and ratios of constituent amino acids making up a specific protein (Friedman, 1996). In general, the legume seed proteins are rich in lysine; but are deficient in the sulpho - amino acids, cystine and methionine, when compared with FAO/WHO (1991) requirement pattern. And hence, in the present investigation, profiles of amino acids of total seed proteins of all the samples are carried out.
Minerals are essential for life as they act as catalysts or structural components of larger molecules with specific functions (Mertz, 1981; Narasinga Rao et al., 1989; Bamji, 1991; Turnlund, 1994). Hence, in the present investigation, the mineral composition of all seed sample also is undertaken.

Though legumes constitute one of the richest and least expensive sources of protein in the human diet, their utilization is limited due to the presence of antinutritional compounds such as protease inhibitors, lectins, goitrogens, anti-vitamins, saponins, tannins, phenolics, estrogens, flatulence factors, lysinoalanine, allergens, phytate, hydrogen cyanide, alkaloids and non-protein amino acids (Liener, 1994). Hence, certain antinutritional substances like total free phenolics, tannins, a non-protein amino acid (3,4-dihydroxyphenylalanine) (L-DOPA), trypsin inhibitor and phytohaemagglutinins (lectins) are also quantified/determined in all the collected germplasm seed materials and the results are correlated with the \textit{in vitro} protein digestibility (IVPD).

It is hoped that this study will provide valuable information that would be useful in current thrust areas of research dealing with studies on the indigenous wild / little known legumes as a cheap source of protein for ameliorating the widely prevailing PEM among the economically weaker sections of population including tribal people in developing countries like India.