INTRODUCTION

Most of the people in the 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 (Proc. world Food Conference, 1976).

There is an ever widening gap between food supplies and population growth, particularly in the third world countries. The food shortage is particularly serious when per capita intake is considered (Amubode and Fetuga, 1984). Protein occupies an important and unique place in Man's diet. Although various classes of compounds can fulfils our energy needs, the protein requirement is basic and irreplaceable (Casey and Wrigley, 1982). About 70 percent of all food for human consumption comes directly from grains and a large proportion of the remainder is derived from animals that are fed on plant and plant products. Seed products are our most important dietary sources of both energy and protein. Whilst cereals and legume seeds may be regarded in developing countries as the sole source of energy in the diet, they are the main source of protein on global scale. In fact, cereals and legumes supply about two-third of Man's protein intake (Pimentel et al., 1975).

Dr. Sukatame of Food and Agricultural Organisation (F.A.O), Rome, Italy and Dr. Gopalan of National Institute of Nutrition (NIN)
Hyderabad, India have adduced evidence to show that in several parts of India under nutrition or inadequate supply of calories is the primary cause of protein mal-nutrition (IARI, Research Bulletin No.6, 1971). The Protein Calories advisory group of the United Nations (Hulse et al., 1977) stated, "The food legumes are important and are economic source of protein, calories as well as several vitamins and minerals essential for human nutrition".

The preliminary analysis of Amubode and Fetuga (1983) showed that some of the wild nuts and seeds used as food in several parts of the world have considerable promise as protein source. The introduction of protein-rich grains like pulses and their genetic enhancement for the quality and quantity of their protein would be a great contribution. In this context, the exploitation of tropical wild legumes including legumes of tribal utility deserve due attention.

A perusal of the available literature reveals that meagre information is available on the evaluation of agrobotanical characters, biochemical composition and nutritive value of Indian tribal pulses (Singh et al., 1980; Arora et al., 1980; Janardhanan and Lakshmanan, 1985). Therefore, there is an urgent need to exploit the under exploited and unexploited legumes especially those of tribal utility and their wild related species in India, because there is enormous germplasm in these plants which can be
profitably employed to improve the modern cultivars and some of the promising wild tribal pulses can be adopted as future source of protein to meet the ever increasing demand for plant protein due to population explosion as well as prohibitive cost of animal protein (Janardhanan, 1982). In view of this, in the present study a sincere attempt was made to collect 25 germplasms of tribal pulses and their wild related species from different regions of India.

The agrobotaincal characters were evaluated for all the collected tribal pulses and their wild related species except Acacia catechu (because of poor viability of seeds) with a view to explore the possibility of bringing them under cultivation.

In the present study proximate analysis of the collected germplasms were carried out because it provides information on the contents of moisture, crude protein, ether extract (crude fat), crude fiber, ash and nitrogen free extractives or the crude total carbohydrates of the seed or any food stuff (Müller and Tobin, 1980).

While assessing the protein quality in legume seeds, it is imperative to resolve the seed proteins into Osborne's (1924) different solubility classes (protein fractions) since the amino acid composition of the major seed protein fractions, albumins and
globulins differ markedly. In the present investigation the albumin, globulin, prolamin and glutelin fractions were separated in sequence and quantified. The albumins and globulins were separated by polyacrylamide disc gel electrophoresis (PAGE).

The amino acid composition of the seed proteins in relation to the F.A.O reference pattern (F.A.O/W.H.O 1973), protein digestibility and the presence of antimetabolic proteins also have to be taken into account while assessing the protein quality (Boulter et al., 1976). And hence in the present investigation profiles of amino acids of acid hydrolysed purified total seed proteins of *Mucuna gigantea*, *Canavalia gladiata*, *C. ensiformis*, *Bauhinia purpurea*, *B. racemosa*, *B. vahlii*, *Abrus precatorius*, *Acacia catechu*, *Prosopis chilensis*, *Parkinsonia aculeata*, *Vigna umbellata* var. RBL 40, *V. umbellata* var. K 1, *V. sinensis* (pale pink-coloured seed coat) *V. sesquipedalis* were studied by Automated Amino Acid Analyser.

Food grains are considered to contribute significant amount of minerals apart from B-complex vitamins in the Indian diets (Gopalan et al., 1978). Hence in the present investigation mineral composition of the seed flour has also been studied.

The various toxic or antinutritional factors of the seeds like
L-DOPA (3-4, dihydroxyphenylalanine), total free phenols, tannins, phytohaemagglutinating activity and trypsin inhibitor activity also have been investigated and the overall nutritional quality of all the germplasm seed materials discussed.

Certain favourable agrobotanical and biochemical traits have been identified in the investigated germplasms for further exploitation in future.