CHAPTER-I
INTRODUCTION

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Potato is one of the important human food with the highest yield among crops. It is accounted as a main stable diet. Potato is a Principal cash crop. It contributes to the material economy in many ways. Potato improvement projects under AICPIP were sanctioned in 19.70 in fourth five year plan to conduct and coordinate Potato research findings under different agroclimatic condition in India (Anon, 1984; Chadha, 1998).

Potato was introduced into India perhaps in 16th or early 17th century by either the portuguese or the British. In India a large vegetarian population of stape percentage of our people lives below present distribution.

Vegetables are the most important components of a balanced diet. These have high food value for our body. Vegetables have maximum economical food value in comparison to milk fish or egg etc. (Chaudhayr, 1972; Grewal, 1993; Kaul, 1996; Marhawa, 1996).

Potato (Solanum tuberosum L.) having probable is a native of South America, where it occupies largest area in the world. Potato is an annual herbaceous plant so it is called "King of vegetables" (Chandra et al., 1990; Mishra, 1990). Infact now-a-days, vegetable got an export importance

and high nutritive value for human beings in all over the world (Muthuswami and Krishnamurthi, 1972; Manuah et al., 1979). Among all the families having vegetables crops, Solanaceae have a great significance because it includes important vegetable crops. It is used in many forms throughout India and abroad (Tripathi, 1985; Tyagi, 1985; Volkonen et al., 1992).

Potato is a nutritious food and provides carbohydrates, Protein, minerals, vitamins and a number of vitamins of B groups. It can grow in wide range of climatic and soil conditions (Panda, 1972; Pandita, 1971; Singh and Rathi, 1983; Singh, 1996).

The genus solanum comprises about 150 species most of them produce tubers but there are some which do not produce tuber but they are also important. Two tuber bearing species namely : Solanum tuberosum sub species tuberosum. Potato can be harvested while tubers are still immature (Levy, 1978; Singh et al., 1969; Sindhu et al., 1980).

Uttar Pradesh is the most important potato growing state in our country where 90 per cent of the total area under the crop, accounts 50 per cent of the production (Singh and Jain, 1968; Singh and Singh, 1976; Thompson, 1984). West Bengal is another state, where potato is grown and

about 25 per cent of the production. Bihar, Madhya Pradesh and Punjab are also the important places where potato is grown about 90 per cent of production of potato is formed in the country (Tyagi, 1985), Velayudhan et al., 1992).

It is grown in well drained loam soil which is rich in humans. Acedio soil is also important and suitable for potato cultivation proper manuring is also an essential part of growing this crop (Arvan, 1981; Sud, 1996).

The rank of potato is fourth in area and fifth is production. There is a vast scope to increase production and productivity of Potato. It produces more food per unit area and per unit time. As regards of food energy and protein production of potato is known that per hectare yield of energy and protein from potato is 678 (10^6 Kcal) and 176 kg. respectively.

Genetical parameters like heritability, correlation coefficient and variability of different characters, genotypic and phenotypic aspects in almost all types of crops are essential because these have been reported helpful to improve the quality and quantity of the crops (Gupta, 1969; Singh et al., 1985).

Developing country like India's production is needed for employment generation, potato is both labour and capital intensive crop (Singh, 1984; Rai and Dhankar, 1988).

Phenotypic correlation is of little practical value unless genetic and environmental correlation between pairs of characters are in some direction. Genetic correlation provides a measure of genetic association between the characters (Sindhu and Pandita, 1979; Mangal, 1983; Mishra and Prasad, 1995). Therefore, morphological variability and correlation studies in yield components have been though to take up in detail with following.

OBJECTIVES :

1. Studies on vegetative growth and morphological characters in potato germplasm.
2. Studies on growth and development behaviour in 25 varieties/cultivars of potato.
3. Variability of different parameters in potato plant material.
4. Assessment of the heritability in different characters.
5. To evaluate genetic advance, genotypic and phenotypic covariance in potato.
6. Correlation studies with special reference to phenotypic, genotypic and environmental correlation.
7. Direct and indirect path coefficient analysis.
8. Studies on genetic divergence in different genotypes of potato.
9. Disease incidence in the genotypes.

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