INTRODUCTION

Mungbean (*Vigna radiata* (L) Wilczek) an important grain legume of the family leguminasae and sub family papilionaceae is extensively grown from humid to arid and semiarid regions of India. Because of its short growing season the crop is widely grown in mono, as inter and multiple cropping system and has remained as the favourable choice of the farmer as a *Kharif* crop in rainfed conditions of India. With increased irrigation facilities through new irrigation projects and remunerative prices, this crop is occupying considerable area during spring/summer and *rabi* seasons in several states of India. Mungbean has 25.7 percent protein of easily digestible nature, 3.3 percent fat, 5.9 percent fibre, 51.2 percent carbohydrate, 3.4 percent minerals, 0.3 percent vitamins and 10.2 percent moisture. It occupied an area of 3.13 million hectares with total production of 1.09 million tonnes in India during 1986-87 but the productivity is 337 kg/ha. This low productivity is caused by inherent low potential for grain yield, damage caused by biotic stresses like pests and diseases, poor management, cultivation under marginal conditions of moisture stress and low fertility, environmental stresses like drought, flood and continuous rains at maturity and non-responsiveness of cultivars to better management.

Mungbean is a self-pollinated crop and its genetic improvement has been attempted through conventional breeding procedures
such as selection from local genetic stocks, pedigree and bulk methods of breeding in hybrid material. A high degree of heterosis for grain yield has been reported for this crop, however, its commercial exploitation has not been possible so far. The development of pure lines from variable populations, therefore, has been the main approach of plant breeders. Various modern breeding methods could be adopted to boost the grain production of this crop by incorporation of synchronous early maturity, responsiveness to better management, photo and thermoinsensitivity, erect plant type, reduced vegetative growth, high harvest index, high source-sink relationship, wider adaptability and resistance to environmental and biotic stresses.

In biotic stresses like pest and diseases, yellow mosaic virus is a prominent problem for mungbean breeding as it causes very severe damage and reduces the grain yield to a considerable extent. Most of land races and released varieties of mungbean are susceptible to yellow mosaic virus which causes heavy losses (upto 100 percent) depending upon severity of disease incidence and genotypic response to disease development. The disease is caused by a virus, transmitted through a vector, white fly \( (Bemisia\,\,tabaci\,\,Genn) \). High temperature and humidity favour the spread of white fly which finds ample chance of multiplying on other host plants. Owing to high cost of plant protection measures, the crop is very severely affected through the spread
of yellow mosaic virus. Immunity or complete genetic resistance has so far not been reported from the world germplasm. Recently some varietal resistance/tolerance to yellow mosaic virus in mung-bean has been reported (Shiva Prakasham et al 1974, Mishra et al 1978). The genetics of resistance to yellow mosaic virus and gene action are not yet established although few contradicting reports are available (Singh and Patel, 1977, Dahia et al 1977, Ahuja and Singh, 1977, Singh and Mallick, 1978, Shukla et al 1978 and Sandhu et al 1985).

Considering the importance of the problem of yellow mosaic virus, the present study was undertaken:

1. To induce mutation for yellow mosaic virus resistance with the hope of identifying new sources of yellow mosaic virus resistance,
2. To study the strains of yellow mosaic virus, and
3. To establish the genetics of yellow mosaic virus resistance.