REVIEW OF LITERATURE
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Garlic (Allium sativum L.) is an important spice crop and has its great potentiality for earning foreign exchange (Maurya, 1992). Mostly spices are reproduced in different parts of the country (Chaudhary, 1960; 1967). Our country has the largest area under onion and garlic. Garlic is an important crop for higher nutritive and medicinal values. Garlic growing states in India are Gujarat, Rajasthan, Maharashtra, Madhya Pradesh, Uttar Pradesh, Bihar, Karnataka, Tamilnadu etc. (Prasad and Chauhan, 1993).

In modern era genetical studies are the major one leading to genetical improvement. It is essential long-felt need in garlic crop. Genetical studies play an important role for obtaining the high yield of quality crop. Genetical improvement in garlic crop requires data on the available germplasm collections if available at different research centres. On the basis of data and results further improvement work is thought essential in
this crop. In meagre findings of general variability gave some preliminary idea. Therefore, it has become an essential project to conduct trials on a planned way.

Some research work has been carried out by the earlier scientists on garlic and other spice crops and some valuable results have been achieved. The literature related to the present problem has been reviewed here for having an idea about the crops, different aspects etc. to plant out the work leading to make further improvement with new results (Karla et al., 1981; Prasad and Chauhan, 1993 a; Singh, 1981).

It was observed in different experiments that all these vegetables and spices can be grown and preserved as fresh for about 20 days by keeping them in cold storage at 13°C (Patel, 1987; Murthy, 1988; Gowda et al., 1990). Om and Srivastava (1974) carried out investigations in garlic at Chaubatia where they observed that height of plant,
number of leaves, diameter of plants, bulb size, number of cloves per bulb and bulb yield were influenced greatly by 75 Kg N/ha and it was found superior to all other combinations. In recent years, a lot of work has been done on other spices and emphasis has been made for conducting research work on them (Chaudhary, 1960, Prasad et al., 1993; Singh et al., 1961, 1974, 1998). However, Abou et al. (1972), Korla and Rastogi (1979), Mehta and Patil (1985) and Pandey (2001) also indicated the importance of spices for our National economic growth.

Chung et al. (1973), while studying the chemical composition of garlic during various stages of growth, observed a large amount of Ca in bulb during leaf growth and in the leaf during growth and maturation.

In all over India spices are grown but there regional basis of agro-ecological potential and divergent flora for earning high yield which
gave its importance. A large quantity of production has been advocated but quality produce has been emphasized (Maurya and Lal, 1975).

Das et al. (1986, 1986a) conducted painstaking work on growth behaviour of garlic where they observed the occurrence of Ca and N.P.K. uptake up to the middle stage of bulb thickening and the transference from leaves/stem to bulb was 40 per cent. On the other hand mg uptake was occurred upto the harvest stage. The transference to the bulb was about 30 per cent. These value of nutrient uptake in garlic was found near about similar from other crops. Except Sulphur and Calcium, which were statistically higher in them.

Further, Das et al. (1985) in previous trials reported that storage quality showed no response towards the rate of Phosphorus at 15.7 to 94.2 kg per hectare in garlic bulbs.

Cho and Lee (1974) in onion and garlic
reported that bulbs harvested in mid and late August had the best quality and high contents of dry matter and total reducing sugar. A decrease in them was also noted with the delay in harvesting data. Moore and Atkins (1977) conducted trials for two years with the cultivar Punjab 48 large and medium onion and garlic bulbs where they planted them at 50 or 45 Cm between rows, received N at 100, 150 or 200 kg/ha, useful results were reported by them. Bhattal and Thakur (1985, 1988) studying the change in dry matter content, quality grade and weight of marketable produce, found best storage quality in the spring variety.

Rahim et al. (1985) planted the local cultivar of garlic obtained from medium or small mother bulbs on dates at 6 densities. It was found that cloves taken from mother bulbs and planted on 31st October at the rate of 100 per sq. meter, and it gave the highest yield. Another experiment on onion bulbs was conducted by Miccolis et al. (1985). Where they
observed that seasonal conditions and water availability specially during flowering influenced greatly the production and quality. Similar type of studies on garlic cloves were also conducted by Scheffer (1986) where they reported the highest yield with earliest planting date. It was found to be decreased with each successive harvest to 7.7 t/ha. More cloves were also recorded in the bulbs from earliest planting. Data on weight loss during storage was also presented. Das et al. (1986) planted the cloves of cultivar lawli at 400 kg/ha on 6 dates between 1st November to 22nd December and obtained good plant growth and highest yield of good quality bulbs observation of garlic cloves found that highest yield and best quality was shown by the cloves planted in double rows 0.76 m apart with normal dose of nitrogen.

Rahman and Talkudar (1987) in garlic reported that planting on the earliest date and at highest density produced highest yield of 11.28 t/ha but bulb
weight was very low. It was found to be increased with widest spacing. Singh (1987) reported the maximum rotting of stored bulbs caused by *Aspergillus torreus* and *Fusarium culmorum* at 30°C and 90 per cent RH. It was found to be decreased when the temperature was less than 25°C and 30-50 per cent RH. Daunona (1987) conducted experiments and reported that magnesium chlorate affects greatly the onion cultivar with its various aspects. It was found to dry the leaves earlier than the natural and thus made the crop ready for harvest. Moisture content was also found to be reduced but it had no effect on yield. It was also studied the that effect of different chemicals on storage behaviour of onion and garlic had certain uses (Tiwari, 1963; Thomas, 1986).

Singh and Tiwari (1973) carried out investigations on onion bulbs to study the fresh weight and respiration in them, influenced by storage temperature. Fresh weight was found to be increased
with increasing temperature. External sprouting and rooting were greatest at 15 per cent when bulbs stored at 0° to 30°C.

Pal and Fogat (1984) studied the growth and yield in garlic influenced by date of planting and spacing. Best yield and quality was recorded in January planting at 15x10 cm. spacing. Mid February planting was found to produce the plants free of bolting while spacing showed no effect on bolting. Mid December and Mid January planted crop showed increasing bolting. Lawande and Kale (1987) also made similar studies in several crops and obtained useful results. Some genotypes of garlic were evaluated for different characters and productivity. G-61 gave the highest bulb yield. Thinnest neck was recorded in TC 25599. However, G-1-14, G-27 R were also found to be high yielding genotypes. The genotype Italian showed least number of cloves per bulb and highest cloves weight with comparatively good yield. G-14 had the least
sufferance from purple blotch where as agrifound white, IC 25599, G-41 and G-74 were very susceptible to the disease, thereby resulting in earliest harvest. Highest protein was recorded in G-20 which also had highest per cent of dry matter weight of bulb bulb diameter. Neck diameter and plant height had high magnitude of correlation with yield. Also bulb diameter had the highest direct contribution and neck diameter, plant height and length of leaves and cloves had indirect effect on yield. (Kim et al., 1977; Larence and Neyle, 1946).

Recently, Singh et al. (1974) and Kumar (1987) conducted research trials on garlic and bulbous plant for the study of variability and path coefficient analysis, respectively.

Recent reports showed that its export value is also very high from the fresh as well as processed products (Singh et al., 1961; Shu and Park, 1986). Now-a-days dehydrated garlic products are becoming

In view of the importance of crop and its improvement through breeding, it is necessary to carryout research work on this project. Therefore, present project has been considered for studying and its data would be helpful to make improvement in garlic germplasm material.