

## Effect of azotobacter and biophos on seed yielding capacity of onion (*Allium cepa* Linn.)

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### ABSTRACT

Seed yield in onion is influenced by many factors among which cultivars, bulb weight, soil and climate, spacing, fertilizer application and date of planting are important. This experiment was undertaken to compare the effect of certain biofertilizers on flowering and seed yielding capacity of onion. Onion bulbs of both IIHR(Y) and ADR varieties were treated with biofertilizers such as Azotobacter and Biophos at 5 and 10 per cent concentration levels. The study reveals that maximum number of umbels were observed by the treatment of Azotobacter 10 per cent in both the varieties. Similar trend had been noticed in parameters of umblets, number of seeds per umblets and seed yield. As for as biophos is concerned 10 per cent concentration was found to be superior in both the varieties than 5 per cent concentration.

**Key words:** Onion, Seed production, Biofertilizers.

**B**iofertilizers are culture of bacteria which benefit the plants by providing nitrogen intended for seed (bulb) or soil application and designed to improve soil fertility and help plant growth. Onion being important vegetable crop needs proper attention for producing better quality seeds and bulbs. To achieve higher seed yield and better quality seeds, the bulbs should be dipped on biofertilizer solution. The beneficial effect of Azotobacter and Biophos culture have been reported by several workers. The present investigation has been carried out in two commercial varieties of onion such as IIHR (Y) and ADR to compare the effect of Azotobacter and Biophos at 5 per cent and 10 per cent concentration levels.

### MATERIALS AND METHODS

Healthy bulbs of IIHR (Y) and ADR variety were procured from the Department of Horticulture, Allahabad Agricultural Institute, Allahabad. The bulbs were treated with biofertilizers Azotobacter and Biophos at 5 and 10 per cent concentration levels. Reproductive phase readings were noted after 90 DAT. Readings such as number of umbels, number of umblets per umbel were recorded. The final reading i.e., number of seeds per umbel and total seed yield were recorded at the time of harvest (170 DAT).

### RESULTS AND DISCUSSION

The experiment on various concentration of biofertilizer showed significant variations with respect to number of umbels per plant. At 75 DAT Azotobacter 10 per cent gave maximum number of umbels (7.6)

followed by Biophos 10 per cent (7.3) with the variety ADR. A similar trend was also recorded with the variety IIHR (Y) where Azotobacter 10 per cent gave high number of umbels than Azotobacter 5 per cent. In both the varieties, it is clear that Azotobacter and Biophos with higher concentration at 10 per cent proved significantly effective in enhancing the number of umblets than lower concentration of 5 per cent. Similar results were reported by Sen and Patil (1957) and Nehra and Pandita (1988). Regarding the number of umblets per umbel, the variety ADR significantly indicate a positive response with Azotobacter 10 per cent concentration (724 nos). However, Biophos 5 per cent gave highest number of umblets. As far as IIHR (Y) was concerned both Azotobacter and Biophos at higher concentration increased the number. The findings were also supported by Mishustin and Shitnokova (1971).

The number of seeds per umblets was taken after harvest of umbels. It is evident that different concentrations of Azotobacter and Biophos significantly changed the number of seeds per umbel in both the varieties. It is clear that for ADR variety, the maximum number of seeds per umblets of 6.0 was with Azotobacter 10 per cent which is followed by Biophos 10 per cent (5.6), Azotobacter 5 per cent (4.6) and Biophos 5 per cent (4.0) respectively. For IIHR (Y) variety, the maximum number of seeds is by the treatment of Biophos 10 per cent (4.6) followed by Azotobacter 5 per cent. Similar findings has been reported by Mehrotra and Lehri (1971), Shinde *et al.* (1977) and Singh and Singh (1985).

The study of biofertilizers on seed yielding capacity on onion indicates that both the treatments i.e., Azotobacter and Biophos with higher concentrations were highly