*An Asian Journal of Soil Science,* (June, 2010) Vol. 5 No. 1 : 68-69

*Research Paper :*

# Effect of clinoptilolite zeolite on mushroom growth

S.A. SHINDE, S.M. TELANG, S.S. PATIL AND M.M.V. BAIG

**Accepted :** *February, 2010*

See end of the article for authors' affiliations

Correspondence to :

**M.M.V. BAIG**
Department of Botany and Biotechnology, Yeshwant Mahavidyala, NANDED (M.S.) INDIA

## ABSTRACT

The research experiment was carried out to study the effect of clinoptilolite zeolite on the yield of oyster mushroom (*P. Sajor caju*).Different proportions of Zeolite was added to substrate (Paddy straw) and it was observed that, addition of 10 g Zeolite in substrate resulted 733.68 g/ kg yield, addition of 20 g zeolite produces 764.30 g/kg yield and with addition of 30 g zeolite in substrate resulted 815.20 g/kg yield of mushroom.

**Key words :** Clinoptilolite zeolite paddy straw, *P. Sajor caju.*

The agricultural applications of zeolite are well known. Earlier, the researchers proved the good results of zeolite application on plant growth, yield and some nutritional characters. Zeolite it self are the minerals and have high ion exchange and retention capacity. Zeolite in the soil can prolong the effects of mineral fertilizers. The great affinity of natural zeolite for water and their capacity to retain it can also affect the soil water regime. Experiments have shown that the clinoptilolite zeolite is more effective in nutrient deficient soil. Clinoptilolite influences nitrogen uptake, nitrogenase enzyme activity, germination, accumulation of biomass etc. (Nutsubidze, 1983). According to Japanese workers (Torii *et al.*, 1978) the cropping capacity of carrot, egg plants, apples and wheat increases with application of clinoptilolite from 15 to 63%. Gorokhav *et al.* (1982) reported the application of zeolite with micro fertilizers improved the yield and quality of tomato fruit (dry weight, sugar and ascorbic acid content increased). Good results have been obtained for cotton, wheat, potato, maize (Velikanov *et al*., 1984).

In present work we used the clinoptilolite zeolite powder in mushroom beds to observe its effect on Mushroom yields.

## MATERIALS AND METHODS

The culture of oyster mushroom (*P. Sajor caju*) was obtained from NCL, Pune; the substrate paddy straw was used for cultivation purpose. The dry substrates was chopped to small pieces (3-5 cm) and soaked in cold water for 10 hrs. After soaking, the substrates were taken out and excess of water drained off. The substrate was then pasteurized in autoclave at 15 lbs pressure for 20 minutes. After autoclaving the substrates was cooled down to normal temperature and excess water was drained off. This straw was used for filling the bags. 1 kg dry substrate sample was transferred in to plastic bags (40-50 cm). The spawn was added at the rate of 2 % of weight (substrate) straw and different proportions of zeolite powder was added with spawn that is 10, 20, 30 g. After inoculation, the bags were transferred to mushroom house, where the temperature and humidity conditions were maintained at 20-25$^0$C and 80-90 %, respectively.

Time was recorded in days for formation of fruiting bodies in different treatments. The data was also recorded for the yield, average weight of fruiting bodies, biological efficiency. Biological efficiency expressed in per cent was calculated by the formula recommended by Chang *et al.* (1981).

## RESULTS AND DISCUSSION

The data presented in Table 1 clearly indicated that, the application of zeolite influences the growth, yield of P. *sajor caju.*

### Fruiting bodies formation:

The days required for formation of fruiting bodies were reduced with the addition of zeolite from 20 days to 16.66 days.

### Average weight of fruiting bodies:

The average weight of fruiting body was increased with addition of Zeolite. The maximum weight (5.35g) of fruiting body was obtained with application of 30 g zeolite, followed by (4.12 g) with addition of 20 g zeolite powder.