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Micronutrient Studies on Tobacco Grown in *Goradu* Soil of Gujarat

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Bidi tobacco is extensively cultivated in *goradu* soil of Gujarat, besides other types in small pockets. There is paucity of information on basic aspects of micronutrient concentrations in different tobacco varieties. *Goradu* soils are reported to be deficient or marginal in some of the micronutrients. Effect of micronutrients on tobacco has not been studied in detail in India. Bidi tobacco seedlings raised in the nursery at BTRS (Bidi Tobacco Research Station) showed signs of chlorosis and to what extent this can be alleviated by application of micronutrients was not known. Keeping these problems in view, investigations were carried out at BTRS.

(i) **Basic studies:** For the eight sun-cured and nine flue-cured varieties studied, lamina concentrations of all micronutrients except Zn appeared to be adequate. Except two flue-cured varieties viz. Virginia Gold and 16/103, all other varieties appeared to be marginal in their Zn status containing 13.7-20.0 ppm Zn.

In general, concentrations of Mn, Fe and B in lamina of the sun-cured varieties studied, increased with decreasing leaf positions after sixth to eighth leaf from top. The results suggested that for assessing micronutrient status in these varieties, sampling from top six leaves may be better than composite sample of all the leaf positions.

Among the eight sun-cured varieties, chewing variety Anand 145 accumulated distinctly higher amounts of Fe, Mn and Cu in top leaves.

(ii) **Field experiments:** Effect of soil application of six micronutrients separately and as a mixture at two levels was studied on yield, quality and chemical constituents of bidi tobacco (Anand 2) and flue-cured tobacco (HR 62-7) in separate layout during 1973-74 and 1974-75.

The treatmental effects on the yield of bidi tobacco were not significant. During 1973-74, 5 ppm Zn gave highest yield which was 23% more than that of control. The site was deficient in Zn and the control plants appeared to be marginal in Zn status. A similar beneficial but non-significant effect was observed for flue-cured tobacco in the same year. Hence, the results may be considered as indicative of possible response of tobacco to Zn application in near future.

The experimental site was low-to-marginal in B status. During 1973-74, 10 ppm B treatment gave higher TBLE (319 kg/ha) than control but the difference was non-significant. In the case of bidi tobacco, a significant increase in the concentration of reducing sugars in lamina was noted due to B applications. Further studies on B effect on sugars in producing a milder bidi tobacco suitable for export market would be interesting.

(iii) **Nursery experiments:** The soil applications of micronutrients failed to alleviate the sickly and chlorotic appearance of the seedlings though the treatments increased the micronutrient concentrations of the seedlings. Further studies should consider the low Fe status, high concentration of Cu and bicarbonates and nematode population in the nursery site.