STUDIES ON THE IMPROVEMENT OF YIELDS AND ALKALOID CONTENT IN SOLANUM XANTHOCARPUM

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Solanum xanthocarpum is commonly used as an expectorant in the indigenous system of medicine. The glycoalkaloids are believed to be responsible for the expectorant property of the plant due to its cardiac stimulating effects.

This plant is presently being imported to Sri Lanka. Therefore the studies on cultivation of S.xanthocarpum was initiated by CISIR. The present study deals with the effect of N-fertilizer and plant spacing on glycoalkaloids, solasodine and dry matter yields of S.xanthocarpum.

The treatments were assigned in a Randomized Complete Block design with 4 replications. The N fertilizer treatments were 0, 40, 80 and 120 Kg/Ha. The Spacings were 45x30cm and 45x15cm. The plants of each bed were uprooted at 3, 3 1/2 and 4 months for analysis.

The glycoalkaloid content was determined by extracting with methanol after the removal of fats. The dried extract was dissolved in dil.acid,basified and extracted to chloroform. The solasodine was obtained by hydrolysing the methanolic extract, basifying and extracting with chloroform. The solasodine content was estimated by tlc-densitometric technique devised in our laboratory.

The total dry weight was highest when plants were 3 1/2 months old. Closer plant spacing resulted in 37% more dry matter yield. Total dry matter yield was significantly increased by N fertilizer at 5% level. Application of 80kg/ha and 120kg/ha of N resulted in 205% and 260% higher yields respectively in comparison with the control.

Solasodine and Glycoalkaloid contents did not significantly differ between the 2 spacing levels. Application of N fertilizer significantly increased the solasodine content at 3 1/2 months of maturity.