

Research Paper :

## Indigenous technology knowledge in the management of tobacco mosaic virus and enhancement of quality of bidi tobacco in India

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### SUMMARY

Tobacco Mosaic Virus (TMV) is the major stumbling block for successful cultivation of bidi tobacco in India and abroad. The present study was under taken during 2006 -07 and 2007-08 with ten different Indigenous Technology Knowledge(ITK) treatments along with plant extract sprayed on 25 and 50 day after transplanting. The main aim was to assess bioefficacy of these ITK measures in reducing TMV infection and influence on growth, yield and quality parameters. The pooled analysis over two years revealed that application of Viroson 2% (27.7 % Disease Incidence) followed by Bougainvillea leaf extract 5% (30.2% incidence) and neem 1500ppm(31.8%) incidence was effective. Among ITK measures, Panchagavya 5 % (37.7%) followed by cow urine 10 % (37.8%) were effective. The untreated check recorded maximum incidence of 56.5 % incidence. There was no significant difference among the treatments with respect to growth parameters. However, better plant height, leaf length and leaf breadth were recorded in Viroson, Neem 1500ppm and Cow urine application indicating role induced systemic resistance. Maximum cured leaf yield (1206kg/ha) was recorded in cow urine 10% followed by Viroson 2 % (1157 kg/ha). Among quality parameters, nicotine % ranged from 2.66 to 4.16 with maximum (4.16) in neem leaf extract followed by 3.77 % in Butter milk 5%. The reducing sugar ranged from 5.63 to 10.14% with maximum (10.14%) in Neem 1500ppm followed by 9.78% in Cow urine 10%. The chloride % was within the limit of <1 except butter milk (1.07%). Thus, the investigations opened a new window of opportunity in managing TMV infections through ITK measures enhancing both leaf yield and quality parameters in bidi tobacco.

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### Key words :

Management, Organics, Indigenous technology knowledge, Tobacco mosaic Virus, Nicotine, Reducing sugars

Introduced in India by the Portuguese in 16<sup>th</sup> Century, tobacco cultivation has become a way of life as well as an industry and has made great strides. While playing a key role in Indian economy, despite its social disapproval due to its alleged association with human health, tobacco has thrived well. India occupies second place in area and third place in production accounting for 10% of world's area and about 9% of tobacco production by using just 0.3% arable land. India is one of the leading exporters of tobacco occupying fourth place in overall exports and ranks fifth in the export of FCV tobacco after Brazil, Zimbabwe, China and USA. The country accounts for about 5% (by volume) and 0.7% (by value) of world tobacco import export trade. It accounts for 4% (204 million US Dollars) of India's agricultural exports and 12% (Rs.8182 crores) of total excise revenue. Further, it is the livelihood of about 35 million people including 6 million farmers as well as others in direct or indirect manner (Anonymous, 2004). India produces

about 700 million kg of tobacco in an area of 0.4 million ha.annually. Andhra Pradesh and Gujarat, Karnataka are the important tobacco growing states.

The tobacco environment has often provided ideal conditions for spread and multiplication of organisms that are later adapted as tobacco parasites. The diseases have become a major production constraint in tobacco cultivation both in Bidi and FCV tobacco. The loss due to these diseases is estimated to be in the range of 5 to 15 per cent depending on their intensity. The losses can be minimised by taking timely preventive and curative management practices. The foliar diseases even with low intensity can considerably reduce the value of the final produce in the market. The management practices developed should also consider the use of safer pesticides so as to avoid the residual problems. Tobacco mosaic virus (TMV) is the major stumbling block for successful cultivation of bidi tobacco in India

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