



DISCRIMINANT FUNCTION ANALYSIS OF FACTORS ASSOCIATED WITH THE OUTBREAK OF ROOT ROT DISEASE IN MULBERRY (*MORUS* SPP.)

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ABSTRACT

Cultivation of mulberry is the most crucial factor in establishing a sericultural enterprise. Maintenance of soil health and management of diseases become an integral part of mulberry raising as in any other crop cultivation practice. In mulberry, diseases of the root system pose serious problems and management of soil borne diseases in mulberry plantation has been a more difficult task than the foliar diseases. This is because of the complex nature of edaphic factors. Among all soil borne diseases, root rot disease has become more alarming due to its epidemic nature and propensity to kill the plant completely. Eleven discriminating variables [type of soil, mulberry variety, disease incidence, hydrogen ion concentration (pH), electrical conductivity (EC), organic carbon (OC), soil moisture, phosphorus, potassium, iron and zinc] were considered in the present study to be the strong discriminators for the predisposition of root rot disease in mulberry gardens. The data on these variables were analysed by using the computer software SPSS for windows version 10.0 (SPSS Inc., 1999). The results of discriminant function analysis for root rot affected and healthy gardens revealed that the variables *viz.*, phosphorus, potassium, soil moisture, iron, disease incidence, hydrogen ion concentration, zinc and organic carbon contributed 45.6, 21.6, 17.7, 7.4, 6.4, 0.9, 0.3 and 0.1 %, respectively for the outbreak of root rot disease in mulberry, whereas it was found that there was no role of EC, variety and soil type in predisposing mulberry for root rot disease. The Mahalanobis D^2 for the fitted function was 29.68 and found to be statistically significant ($P \leq 0.05$). The Eigen value was 71.815, percentage of variance and cumulative percentage were 100 % each and the canonical correlation was 0.993. In this analysis, Wilks' lambda showed that the group means were different and value of χ^2 was 996.942 and found to be significant ($P \leq 0.05$).

Key words: Discriminant function, edaphic factors, mulberry, root rot.