

**PRELIMINARY STUDY OF CHEMICAL PROPERTIES IN SOIL
AND HARUMANIS MANGO LEAF TISSUES IN ASSOCIATION
WITH INSIDIOUS FRUIT ROT (IFR)**

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DECLARATION

This Final Year Project is a partial fulfilment of the requirements for a Degree of Bachelor of Science in Agrotechnology (Hons.) Horticulture Technology in the Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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ABSTRACT

PRELIMINARY STUDY OF CHEMICAL PROPERTIES IN SOIL AND HARUMANIS MANGO LEAF TISSUES IN ASSOCIATION WITH INSIDIOUS FRUIT ROT (IFR)

Harumanis (*Mangifera indica* L.) is one of the mango cultivars which is highly demanded due to its excellent fruit quality. Unfortunately, physiological disorder such as insidious of fruit rot (IFR) may reduce the quality of the fruits. Thus, this study was conducted to examine selected chemical properties in soil and Harumanis mango leaf tissue from mango orchard as the factor that affect IFR incidence. A total of twenty-five soil samples taken at a depth of 15cm and mango leaves were collected by using systematic sampling. Soil samples were air-dried, and sieved using 2mm sieve and subjected to analysis of soil pH and electrical conductivity (EC). Leaf samples were analysed to determine concentration of potassium (K), calcium (Ca), and magnesium (Mg) by dry ashing method. The mean value of soil pH is 5.13, indicating that the soil is strongly acidic. The EC content in that area was classified as low in salinity (<2 dS/m) with poor organic carbon (OC) content (0.09%). Harumanis mango leaf tissue indicate excessive nitrogen (N) status (1.05%-1.92%). The Ca (2.57%) level was deficient whereas K (2.14%) and Mg (0.62%) was excessive in Harumanis mango leaf tissue. Carbon (C) content ranges between 40.33% to 49.44%. The K/Ca ratio and N/Ca ratio is the best indicator to predict the occurrence of physiological disorder in mango fruits. Excessive N/Ca (0.59) and K/Ca (0.89) ratio were found in matured mango leaf tissue which results in occurrences of IFR incidence in mango fruits. There was a negative correlation between Ca and N/Ca status in mango leaf tissue ($r = -0.838$). Therefore, it can be concluded that chemical properties and nutrient status in soil and mango leaf tissue significantly result in the occurrence of IFR in Harumanis mango. Proper fertilizer program and liming need to be done in order to ensure sufficient amount of nutrients are supplied to the crop and also to reduce the IFR incidence in Harumanis mango orchard.

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