

**UNIVERSITI TEKNOLOGI MARA**

**ASSESSMENT OF *OIDIUM* DISEASE  
ON RUBBER LEAVES BY DRONE-  
BASED MULTISPECTRAL IMAGES**

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Thesis submitted in fulfillment  
of the requirements for the degree of  
**Bachelor of Surveying Science and Geomatic  
(Hons.)**

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## **AUTHOR'S DECLARATION**

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

*Oidium* Leaf Disease is one of the most infected rubber leaf disease in Malaysia. A severe outbreak of this disease may cause an annual yield loss with 20% decrement of latex production in a rubber plantation. Recent technology using unmanned aerial vehicle (UAV) has potential to provide cost effective data acquisition for the estimation of rubber leaf disease such as *Oidium* Disease. The UAV is able to facilitate spatially and allow temporal flexible data acquisition using a compact camera payload. Thus, the aim of this study is to assess drone-based multispectral images for *Oidium* disease on rubber leaves using spectroradiometer. This study is carried out at Experimental Rubber Plot, Research Station Malaysian Rubber Board, Kota Tinggi, Johor. The map of *Oidium* Disease severity index level is generated by using Support Vector Machine (SVM) Classification. From the severity index level in the map, *Oidium* Disease was identified by low absorption of light at the red band (0.02) and medium absorption at near-infrared band (0.32). The level of absorption from the results indicates that the leaves have less chlorophyll since it was very severely infected with *Oidium* Disease. The finding of this study shows that low-cost remote sensing technology which deploys the UAV and digital compact camera is potentially can be used to determine the condition of rubber tree caused by leaves disease.

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