SOIL ORGANIC CARBON MAPPING USING REMOTE SENSING TECHNIQUE AND MULTIVARIATE REGRESSION MODEL

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AUTHOR'S DECLARATION

I declare that the work in this thesis/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

Organic were the terms use to represent the materials that combined with or derived from living organisms. The quantity of organic matter in soil is frequently used as an indicator of the possible sustainability in a soil system. Soil organic matter was significant part in nutrient cycle and fixing soil structure. Organic carbon in soil was important to build up good health in soil environment and vital in supplying the needs of the ecosystem. This project aims to identify the Soil Organic Carbon distribution based on multivariate regression model. This project was used satellite imagery, SPOT 5 to estimate SOC distribution using remote sensing technique and soil sampling in the Ladang Harumanis, UiTM Arau, Perlis. There were nine soil samplings were picked randomly collected using a handheld Global Positioning System (GPS) unit to location the position of the sampling points. The satellite data derived spectral indices, NDVI and BSI were used to assess spatial distribution of SOC in the study area by testing in the multivariate regression model. The result of regression analysis between the observed and predicted SOC using $R^2 = 0.10$ value was showed only 10% accurate because of the lack of number of soil samples and same land use type which no really soil variations that reflected this result. This information of this study can gave advanced understanding by using the remote sensing approach which had many advantages regarding conventional approach before would be important technique thus increase the effectivity of the soil management method.
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