



Multi-Response Linear Mixed Model (MLMM) for Longitudinal Data: Modelling Agricultural Waste: Plant Rice Straw, Clove Leaf And Water Hyacinth

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Abstract : The research objective is to establish a data model of agricultural waste using multi-response mixed model, with the responses are phenolics, flavonoids, and tannins (PFT). In this study, data to be modeled is a secondary data obtained in Sulawesi Province. The samples were washed, dried and extracted by maceration. Chemical materials such as distilled water, CH₃OH, Folin Ciocalteu reagent 50%, Na₂CO₃ solution 3%, chloride aluminium solution 2%, HCl solution, C₂H₅OH, vanillin solution 4% were used as needed. The result shows the model of agricultural waste using multi-response mixed model. Multi-responses dealing with phenolics, flavonoids, and tannins (PFT), and the single predictors is the level of methanol, and types of plants (plant rice, clove leaf and water hyacid). From the results of the above model predictions show that the pattern of differences between responses (phenolic, flavonid, and tannin) if it is associated with the predictor (methanol), for the three types of plants (plant rice, clove leaf and water hyacid). Response phenolic and flavonid tends to increase with increases in levels of methanol in water plants yacid, but levels go up and down on the crop plant rice and clove leaf. Patterns tend to decline and then increase seen in the response to the three types of plant in tannins response.

Key words: MLMM, Phenolic, Flavonoid, Tannin, Agricultural Waste, Methanol.

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