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Title: Development and property evaluation of alkyd resins from watermelon (*Citrullus lanatus*) seed oil

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Abstract: Watermelon Seed Oil (WSO) has been investigated for its suitability in the development of alkyds. Chemical method is used to extract the oil, and the WSO's physicochemical properties are determined. The alcoholysis-esterification method is used to prepare two grades of alkyds containing 30 percent WSO (alkyd I) and 60 percent WSO(alkyd II).The

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progress of the reaction is monitored by determining the volume of water of condensation and acid value as the reaction progresses. Film properties of the prepared alkyd are determined. The results of the physicochemical properties of the WSO reveal an iodine value of 119.38 gI<sub>2</sub>/100g indicating that it is semi-drying oil and can serve as a modifier for alkyd resins production for the paint industry. Alkyd I has a higher acid value, a greater degree of polymerization and extent of the polymerization than alkyd II, according to the results. Alkyd II produce a harder film than that of alkyd I as observed from the scratch hardness test. Also, both alkyd show good flexibility properties and have good impact resistance on the coated panel. The present study, therefore, suggests that WSO can be considered as a modifier for alkyd resins production for the paint industry.

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