

Extraction and Characterization of Medium and Short Oil From Flax Seed (*Linum Usitatissimum*) Using N-Hexane for the Production of Alkyd Resin

*¹Jaji, S.O., ²Mustapha, A.O., ¹Salami, O.A., ³Awosanya, A., ¹Damazio, A.O., ¹Aiyelero, T.S.,
¹Ejire, A.A. & O.S Folorunsho,

¹Department of Chemical Sciences, Lagos State University of Science and Technology, Ikorodu

²Department of Chemical, Physical and Geological Sciences, Kwara State University, Malete

³Department of Polymer and Textile Technology, Yaba College of Technology

*Correspondents Author:jaji101us@gmail.com

ABSTRACT

Alkyd resins are formed when oil or fatty oil, polyol, and polyacid react. Due to its ease of application in changing climatic conditions, alkyd resins are widely utilized in the coatings and paints industry. Flax seed oil-based paints met all technical requirements, such as drying time, storage qualities, ease of maintenance, appearance, and economics. The purpose of this study was to manufacture alkyd resins based on flax seed oil with varying oil concentrations. Due to their low cost, superior application qualities, and lesser environmental impact as compared to petroleum-based polymers, alkyds have become critical raw ingredients in the coatings and paints industry. The qualities of these oil-modified materials are determined by the type of polyunsaturated vegetable oil used in their manufacture, as a higher degree of unsaturation results in a more cross-linked cured paint. Due to the high degree of unsaturation in *Linum usitatissimum* (flax) oil, it is commonly employed in the development of alkyd resins. Although it is meant to identify and enhance the commercial worth of non-traditional sources. *Linum usitatissimum*, on the other hand, contains a same proportion of polyunsaturated fatty acids. Alkyd resin is produced in two stages: the monoglyceride process and the transesterification process. In this study, medium alkyd resins and short alkyd resins were made using 50% and 40% *Linum usitatissimum* oil, respectively. The FT-IR spectroscopy was used to analyse the synthesized alkyd resins, and standard methods were used to determine their physicochemical parameters such as acid value, colour, viscosity, density, and drying time.

Keywords: Linum usitatissimum, Alkyd resin, Oil length

Proceedings Citation Format

Jaji, S.O., Mustapha, A.O., Salami, O.A., Awosanya, A., Damazio, A.O., Aiyelero, T.S., Ejire, A.A. & O.S Folorunsho, (2022): Extraction and Characterization of Medium And Short Oil From Flax Seed (*Linum Usitatissimum*) Using N-Hexane for the Production of Alkyd Resin .. Proceedings of the LASUSTECH 30th iSTEAMS Multidisciplinary Innovations Conference. Lagos State University of Science & Technology, Ikorodu, Lagos State, Nigeria May 2022. Series 30 Vol 2 Pp 31. www.isteamss.net/lasustech2022. DOI: <https://doi.org/10.22624/AIMS/iSTEAMS/LASUSTECH2022V30-2P4>