



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

With the increased industrialization and modernization, the world demand of lubricants is growing at a faster rate. The rising prices of petrochemical products, depletion of oil reserves, increased environmental concerns and strict regulations on environmental pollution are the major driving forces for the development of biolubricants from renewable resources with minimum environmental impact. One of the possible alternatives to the conventional lubricants is the use of lubricants derived from the plant origins. Fatty acid alkyl esters derived from lipid feedstock such as vegetable oils can be used as biolubricants or additive for lubricity enhancement. Vegetable oil based lubricants are preferred over the conventional lubricants as they are ecofriendly, renewable, non toxic and biodegradable.

This compilation of work done gives an overview of the current activity in the area of bio-based industrial lubricant basestocks. The work presented covers only a portion of the cutting

edge technology being conducted around the globe. Based on the experimental as well as theoretical findings, it is herewith inferred that the prepared lubricant basestocks could be promising for hydraulic and transmission applications. The optimal conditions in the epoxidation, hydroxylation and hexanoylation reactions are the key control variable to obtain a high quality lubricant basestocks. The future path towards a green environment and the eventual depletion of fossil resources requires that the research on renewable resources be continued on all fronts. Progress is being made a step at a time but will eventually result in journey to a more environmentally friendly society.

