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***Topic: Preparation, Characterization and Application of
Vegetable Oil Based Anticorrosive Water Borne Polymer
Nanocomposite***

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Abstract

In recent years, global concerns with respect to depletion of petro-based resources and the research development according to the principles of green chemistry have stimulated the utility of sustainable feed stocks in the synthesis of industrially important polymers. Renewable resources like cellulose, chitosan, starch, and vegetable oils (VO's) have been widely used as raw materials for the preparation of various waterborne polymeric materials. Among these, VO's are considered to be an ideal alternative feedstocks because of their "green" origin, inherent biodegradability, low-cost, easy availability and the presence of various active functional sites amenable to various chemical reactions. Further, inexpensive triglycerides have widely been used in various applications such as inks, lubricant resins, plasticizers and coatings. However, oleo based polymers fail to give good mechanical strength, alkali resistance, stiffness, and rigidity which limits their use for industrial applications. Thus, there is a need to modify oleo based waterborne polymers with suitable moieties to obtain reasonably useful materials that find applications in various industries like inks, lubricants, adhesives, especially in paints and coatings.

Thus the oleo based waterborne polymers are modified in the form of interpenetrating networks, hybrids, nanocomposites etc. Nanocomposites are considered as a versatile class of materials with an immense scope for future research in the field of paints and coatings. The incorporation of nanofillers into the matrix can fill the cavities and cause crack bridging, crack deflection and crack bowing, enhancing the integrity and durability of coatings through strong adhesion between coating and the metal surface. These nanocomposite coatings exhibited a strong impact on physico-mechanical, thermal and corrosion resistance properties. In view of this, the current thesis describes the Preparation, Characterization and Application of Vegetable Oil Based Anticorrosive Water Borne Polymer Nanocomposite.

Keywords: Renewable resource, Vegetable Oil, Waterborne, Polymer Nanocomposites, Nanofiller, Anticorrosive coatings.