Patent Search

Invention Title	PROCESS FOR PRODUCTION OF THYMOL-BASED POLYPHENOLS, EPOXIES AND BENZOXAZINE RESINS
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Abstract:

Abstract of the invention: Title: Process for production of thyme-based polyphenols, epoxies and benzine resins The present invention involves the development of facile production route for thyme based bis-thyme (BT) and trees—thyme (IT) by reacting sustainable bio-based thyme with formaldehyde and hydro-formaldehyde in the presence o mixture of hydrochloric acid and sulphuric acid as catalysts (2:i)'at 100°C for 24 hours. The yield of thyme-based bis-thyme (BT) arid trees-thyme (1'1") obtained from the optimised experimental conditions were 80% and 70% respectively. The structural characterization of thyme-polyphenols was carried out using FTIR, NMR and Mass spectra. Th thyme-polyphenols synthesized were convened into corresponding epoxies (BT-Ep and "IT-Ep) and sleaziness (BT-Bz and TT-Bz) using appropriate chemical precursors under suitable experimental conditions and their curing behaviour and thermal stability were studied. From the DSC data obtained for BT-Ep/IT-Ep series, it was found that the curing temperature was ranged between 87°C/97°C and 250°C/250°C. Similarly for BT-BZ/I'TBz series, the curing temperature was ranged between 216°C/222°C and 277°C/273°C. TGA data obtained for BT-EpT-Ep series, it was found that the decomposition temperature was ranged between 364°C/371°C and 4|8°C/441°C. Similarly for BT-BZ/IT-Bz series, the decomposition -temperature Was ranged between 436°C/437°C and 443°C/4450C. The percentage char yield was calculated from TGA analysis, it was observed that the highest value of percentage char yield was 19% for BT-Ep/formidable mono amine, and 13% for TT-Ep/formidable diam inc. Similarly the percentage char yield was found to be 50% for poly(BT-Bz/furfuryalmine), and 43% for poly(T'T-Bz/furfuryalmine). The present invention is considered as cutting-edge concept in the field of conversion of mono-basic sustainable bio-phenol into bio-polyphenols to substitute conventional polyphenols for the production of industrially valuable resins like epoxies, sleaziness, cyan ate esters, polyesters and urethane.

Complete Specification

Description:

Title: Process for production of thymol-based polyphenols, epoxies and benzine resins

Field of the invention

The present invention relates to the synthesis of thymol-based bis-, and phrenologist (polyphenols) by reacting sustainable thyme with formaldehyde and dehydrogenase respectively in the presence of selected combination of mixture of hydrochloric acid and sulphuric acid as catalysts under appropriate experimental conditions. The present invention offers a novel and simple Synthetic process route for production of thymol-based polyphenols, which are considered as valuable sustainable bio-based precursors capable of replacing fossil synthetic phenolic precursors. Thyme-based polyphenols can be used as potential precursors for production of high valued industrial resins like epoxies, sleaziness

View Application Status