Fatmah Bahabri et al., J Material Sci Eng 2016, 5:7 (Suppl)
http://dx.doi.org/10.4172/2169-0022.C1.047

6th International Conference and Exhibition on
Materials Science and Engineering
September 12-14, 2016 Atlanta, USA

Analysis of Valonia oak (*Quercus aegilops*) acorn tannin and wood adhesives application

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The coupling of matrix-assisted laser desorption/ionisation time-of-flight (MALDI-TOF) mass spectrometry with 13C nuclear magnetic resonance (NMR) is a suitable method for examining the composition of hydrolysable tannins and has been applied to the investigation of Valonia oak (*Quercus aegilops*) acorn tannin extract. Such methods can determine the extract's structural aspects and other characteristics. It was determined that Valonia oak acorn tannin extract is composed of mainly pentagalloyl glucose structures; their rearrangement structures, vescalagin/castalagin (with linkages to flavogallonic acid) and vescalin/castalin; ellagic acid and vescavaloneic/castavaloneic acid; and free gallic acid and glucose. Traces of catechin gallate were also observed in this tannin extract. The tannin from acorns of Valonia oak was used to substitute up to 50% of the phenol used in the preparation of phenolic resins as adhesives for wood particleboard. These phenol-tannin-formaldehyde resins showed comparable performance to phenol-formaldehyde resins.

Biography

Fatmah Bahabri has completed her PhD and Post-doctoral studies from King Abdulaziz University. She is the member of Physics department and has been serving as Deputy Director of the Nanotechnology Center for two years 2014 and 2015. She has published more than 25 papers in reputed journals and has been serving as a Head of Physics department for 16 years sporadic 1991-2012, and Vice Dean of the Girls Faculty of Science for two year 1997and 1998 . She is a member of Graduate Studies.

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