



## Council for Scientific and Industrial Research (CSIR)

Natural Resources and the Environment (NRE)

Durban, South Africa

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<b>Title:</b>	<b>Valorisation of bark components</b>
<b>Abstract:</b>	<p>Bark from forest species represents a major biomass feedstock that is currently considered as an under-utilised resource and often a solid waste residue in wood processing. Bark valorisation in the context of a biorefinery requires careful examination of composition and processing characteristics. Bark has a similar chemical composition to wood but it contains more extractives and phenolic compounds which make it possible to utilise bark, for example, as a substitute for phenol in phenol–formaldehyde (PF) resin synthesis. The phenolic compounds of the bark extractives have been used as accelerators of PF resins in particleboard and plywood production due to their ability to minimise gelation and shorten press time. However, the challenge is that there is little known about their fractionation behaviour and the chemical characteristics of the different fractions. Fractionation is used for selective enrichment of specific components by taking advantage of the biomass chemical and structural heterogeneity.</p> <p>The objectives of the study are to determine the optimum extraction process of the polyphenolic material and subsequent valorisation of the polyphenolics into green adhesives. Through these objectives the project aims to provide research based technical understanding and solutions needed to extract high value polyphenolic compounds from bark. This study, will serve to valorise a renewable resource that is currently under-utilised.</p>
<b>Lead institution:</b>	CSIR
<b>Partner institutions:</b>	UKZN, Sappi, University of Toronto
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<b>Degree:</b>	MSc
<b>Funded by:</b>	PAMSA
<b>Start date:</b>	Jan 2016
<b>End date:</b>	Dec 2017
<b>Feedstock:</b>	Bark
<b>Value chain products:</b>	Glues, binders, compost
<b>Geographic source of the feedstock:</b>	Across South Africa