

**Title** Bio oil from pyrolysis of cashew nut shell-characterisation and related properties  
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#### **Abstract**

Biomass in the form of cashew nut shell represents a renewable and abundant source of energy in India. Cashew nut shell (CNS) was pyrolysed in a fixed bed pyrolysis reactor under vacuum. The CNS on heating upto 175°C produced dark brown oil (oil CO1), which was extracted, and the CNS, after the removal of oil CO1, was pyrolysed under vacuum. The pyrolysis vapours were condensed to get a combustible oil fraction (oil CO2) as well as a noncombustible aqueous fraction. The detailed chemical compositional analysis of both the oils as well as aqueous fractions were carried out by various techniques like liquid column chromatography <sup>1</sup>HNMR, <sup>13</sup>CNMR, FTIR, GC-MS. The CNS oils (CO1 and CO2) were found to be a renewable natural resource of unsaturated phenols with long linear chains and marked absence of anacardic acid. Unlike other bio oils, the CNS oils have been found to be fairly stable. The oils were completely miscible in diesel and were found to have low corrosivity towards Copper and Stainless steel, and thus promise to be a potential fuel.