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## Production of bio-ethanol from mesquite tree using fermentation process

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This work investigated the production of bio-ethanol from mesquite tree using fermentation process. Mesquite common term given to all the multiple disparate plant species of the genus (*Prosopis*) is a legume family member (*Leguminosae*). From the basic local studies, the area which is covered by this plant is estimated to be about (30,000-24,000) hectare, and one hectare contains about 500 trees, and every tree can produce about 20 kg from the kroon (fruits) annually. The number of trees in Yemen is about (1,250,000-1,500,000) trees in 2014. In the first step, the hemicellulose fraction of the biomass is broken down into simple sugars. A chemical reaction called hydrolysis occurs when dilute sulfuric acid or by liquid hot water is mixed with the biomass feedstock. In this hydrolysis reaction, the complex chains of sugars that make up the hemicellulose are broken, releasing simple sugars. The complex hemicellulose sugars are converted to a mix of soluble five-carbon sugars, xylose and arabinose, soluble six-carbon sugars, mannose and galactose. A small portion of the cellulose is also converted to glucose in this step. In the second step, cellulase enzymes are used to break the chains of sugars that make up the cellulose, releasing glucose at temperature of 45-50°C. The glucose is converted to ethanol, through a fermentation process. The ethanol recovery percentage is 95%.

### Biography

Ahmed Mubarak Alsobaai has completed his PhD from University Science University. He has published more than 20 papers in reputed journals and has been serving as a reviewer of repute.

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