

Utilization of waste Corn Cobs for the production of furfural



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Corn cob is an abundant agricultural waste around Hyderabad, rich in pentosans (~30 wt%) and cellulose (~40 wt%). United Andhra (4 MMT/year) is the second largest producer of corn, with the highest productivity (5.7 MT/hectare) in the country after Karnataka (4.4 MMT).

Therefore, this proposal was focused on utilizing waste corn cobs to produce industrially relevant organic chemicals: furfural and 5-hydroxymethyl furfural (HMF). Such kinds of technological initiatives will improve the economics of our country by creating job opportunities in rural areas.

The successful implementation of the project will also boost the growth of the agriculture-based industries in rural areas to produce green energy/organic chemicals. The process involves the dehydrocyclization of pentose and hexose sugars to furfural and HMF in the presence of a solid acid catalyst, such as cation exchange resin, sulfonic acid-functionalized silica, etc.

The reaction favours high furfural yield at lower reaction temperatures (140-180°C); however, the yield of HMF is prominent at higher reaction temperatures.

Representational Image



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