

PROSPECTS OF DATES AND DATE PALM IN BIOTECHNOLOGY

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The utilization of dates and date palms as potential sources of by-products was reviewed. Peroxidase was extracted, purified, and characterized from Khastawi cultivar leaves and seedling roots. Enzyme activity in seedling roots was 296400 unit/g acetone powder, while it was 156750 unit/g in the leaves. The purified basic peroxidase isozyme showed linear behavior when used in coupled-enzyme system for glucose determination between 0-1 mg glucose/ml. Screening of Zahdi Brain and Barchee seeds for lectin activity showed the presence of hemagglutination activity towards the all human blood groups. Also, Barchee seeds had the highest trypsin inhibitor specific activity (6309 unit/g protein) followed by Khastawi (5250 unit/g), Barhee (1551 unit/g, and Zahdi (1342 unit/g). Furthermore, salivary α -amylase specific activity in Zahdi, Khastawi, Barhee and Braim seeds was 14, 10.9, 1.5 and 0.8 unit/g protein, respectively. Zahdi dates extract showed similar efficiency to beat molasses as carbon sources in alginic acid production by *Azotobacter vinelandii*. The optimal production conditions of alginic acid by solid state fermentation included using wheat bran, Zahdi date extract (4% TSS), baker's yeast (0.75%), potassium dihydrogen phosphate (0.1%) and inoculation with 4.8×10^5 cell/flask at an initial pH of 7.0, maximum alginic acid production was observed after 6 days at 28° C.