

Cellulase activities of fungi isolated from sugarcane bagasse and decaying plant material

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The aim of this work was to evaluate the cellulolytic activity of fungi isolated from sugarcane bagasse and decaying plant material. Two isolates from sugarcane bagasse and one from decaying plant material were evaluated for their cellulolytic activities and compared to the fungi *Trichoderma reesei* QM9414 and *T. reesei* RUTC30. Cellulolytic activity was estimated by the hydrolytic capacity of the enzymatic extract of the fungi grown on sugarcane bagasse with different amounts of rice bran (10 and 20 %). The cellulolytic activities were measured using as substrates both filter paper (for total cellulase activity) and sodium carboxymethyl cellulose (for endoglucanase activity). The isolates identified by molecular analysis using 26S rDNA region were: *Moniliophthora pernicioso* and *Aspergillus fumigates* (from sugarcane bagasse) and *Trichoderma* sp RA305 (from decaying wood). *T. reesei* QM9414 showed the highest, whereas *T. reesei* RUTC30 showed the lowest total cellulolytic and endoglucanase activities amongst all isolates. *Trichoderma* sp RA305 presented similar total cellulase and endoglucanase activities when compared to QM9414 strain in substrates containing 10 % of rice bran. This strain also showed the highest activities between all isolates when bagasse was mixed with different proportions of rice bran. Rice bran addition proved to be an effective stimulator for the cellulolytic activity of *Trichoderma* sp RA305 (10 %), *Moniliophthora pernicioso* and *Aspergillus fumigates* (20 %). To sum up, we can conclude that biodiversity in niches, such as bagasse and decayed plant material, can provide strains with cellulolytic activities with great biotechnological potential. Additionally, it also showed that rice bran can act as inducer for cellulase production when cane bagasse is used as substrate.

Keywords: Cellulase; FPase; Endoglucanase; Sugarcane bagasse; Rice bran; *Trichoderma reesei*; *Moniliophthora* sp; *Aspergillus* sp.

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