



SCREENING OF SONORAN DESERT FUNGAL STRAINS FOR FERULOILESTERASE ACTIVITY

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Introduction. Feruloyl esterases (EC 3.1.1.73), also known as ferulic acid esterases, cinnamic acid esterases, or cinnamoyl esterases, are a class of enzymes that are involved in the liberation of ferulic acid and other cinnamic acids from plant cell wall polysaccharides (1). Microbial feruloyl esterases represent an important group of hydrolytic enzymes that have wide range of applications (2). The feruloyl esterases have been classified into four groups based on their primary sequence and substrate specificity (3). In this study, a fungal culture collection of CIAD was screened for cinnamoyl esterase activity employing several substrates.

Methods. For preliminary screening, agar plates containing minimal medium, ethyl ferulate and. After inoculation and incubation at °C during h, appearance of a hydrolysis halo was used as criterion to select potential strains. Then, crude extracts obtained from solid state cultures on bagasse and minimal medium of the selected strains were added to 26 well microplates containing methyl ferulate, methyl caffeate, methyl p-coumarate and methyl sinapinate as substrates. The activity was determined in a microplate spectrophotometer at 410 nm .

Results. After the preliminary screening, 26 strains were selected. 23 strains had activity on the four substrates employed. The strain 12 only had activity using methyl ferulate and methyl p-coumarate as substrates. In the case of strain 22 and 25, activity was minimal with any of the substrates used.

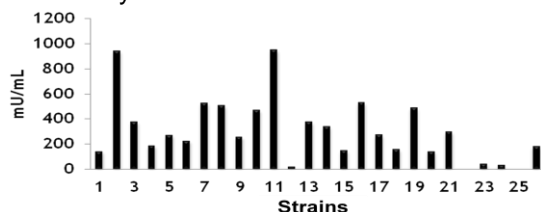


Fig.1 feruloyl esterase activity with methyl ferulate.

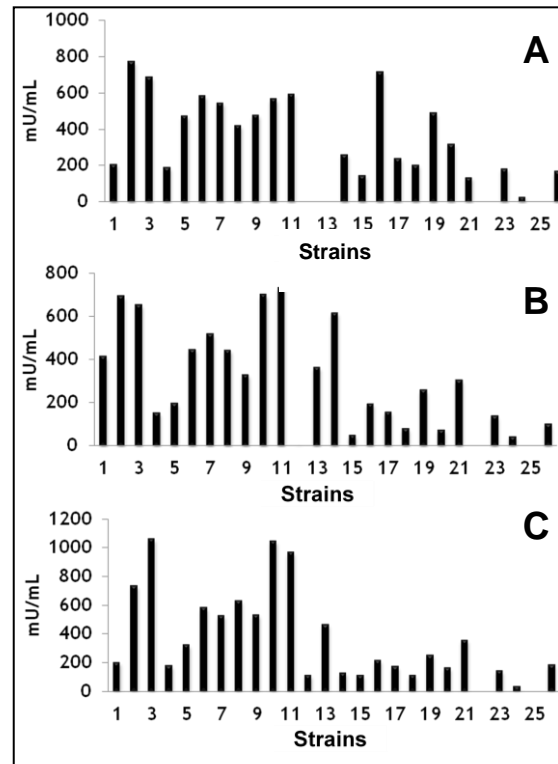


Fig.1 feruloyl esterase activity (A) methyl caffeate, (B) and methyl p-coumarate (C) methyl sinapinate.

Conclusions. Scarce selectivity on substrates suggests that more than one strain had a pool of cinnamoyl esterases.

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