

A Viable Approach for Biological Detoxification of Non Edible Oil Seed Cakes and Their Utilization in Food Production Using *Aspergillus Niger*

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Abstract : We used biological detoxification method that converts toxic residue waste of *Jatropha curcas* oil seeds (non edible oil seed) into industrial bio-products and animal feed material. Present study describes the complete degradation of phorbol esters by *Aspergillus Niger* strain during solid state fermentation (SSF) of deoiled *Jatropha curcas* seed cake. Phorbol esters were completely degraded in 15 days under the optimized SSF conditions viz deoiled cake 5.0 gm moistened with 5.0 ml distilled water; inoculum 2 ml of overnight grown *Aspergillus niger*; incubated at 30° C, pH 7.0. This method simultaneously induces the production of Protease enzyme by *Aspergillus Niger* which has high potential to be used in feedstuffs .The maximum Protease activities obtained were 709.16 mg/ml in *Jatropha curcas* oil seed cake. The protein isolate had small amounts of phorbol esters, phytic acid, and saponin without any lectin. Its minimum and maximum solubility were at pH 4.0&12.0. Water and oil binding capacities were 3.22 g water/g protein and 1.86 ml oil/g protein respectively.Emulsion activity showed high values in a range of basic pH. We concluded that *Jatropha Curcas* seed cake has a potential to be used as a novel source of functional protein for food or feed applications.

Keywords : solid state fermentation, *Jatropha curcas*, oil seed cake, phorbol ester

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