Microbial Enzymatic Degumming of Crude Soybean Oil *(Lecitase Novo rom Aspergillus Orizae)*

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Higher free fatty acid (acid value) and peroxide value generally reduce the edible oil quality. Removal of free fatty acid from crude edible oils can be done by chemical neutralization combined with physical refining like vacuum distillation. The latter method requires that the phosphatide (Gum) content less than 10 ppm. Here target level of gum removal (Degumming) was attempted by using microbial enzyme (Lecitase Novo) secreted by *Aspergillus orizae* combined with water degumming under optimum condition with mixing. The enzymatic degumming process was employed to reduce the level of phosphatide **(P) to** 10 ppm at six (6) hours of duration with mixing. A chemical degumming process was attempted with citric acid and sodium hydroxide, exhibiting a speeded in reduction of the gum level to less than lOppm in 2 to 3 hours of mixing, where the constant parameters crude oil one liter, 1.5% of water, 1.5% Buffer (0.05% citric acid 50% solution and 4M NaOH solution with neutral pH) mixing speed 1000 rpm with peddle type stirrer, viscosity of 0.0322 kg/m.s, density of 930 kg/m^3, with constant temperature at 40 $^{\circ}$C in water bath. Quality of edible oil mainly depended on properties such as phosphatide level, acid value and peroxide value. Crude soybean oil contains phosphatide 700 — 750 ppm, acid value 1.82% and peroxide value 5 meq/kg. After degumming process chemical and enzymatic degummed oils expressed that the value of phosphatide less than 10 ppm, acid value 4.55±0.46 and 3.64±0.23 peroxide value 10.5±0.5 and 12.5±0.7 respectively. The microbial phospholipase enzymes are an economically attractive in edible oil processing which exhibits some unique features while compared to chemical method.

Key words: Enzymatic degumming, Crude soybean oil