

PRETREATMENT OF WET MILLED CORN FIBER TO REMOVE CARBOHYDRATE
POLYMERS AND TO OPTIMIZE RECOVERY OF CORN FIBER OIL AND
PHYTOSTEROLS

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The unique phytosterol containing oil in the corn fiber (corn fiber oil) has potential use as a natural LDL-cholesterol lowering nutraceutical but its low concentration in fiber (1 to 3%) makes it is difficult and expensive to extract. Pretreatment of corn fiber with dilute acid and/or glucosidases removed nonlipid components of fiber, producing oil enriched fractions that should be more amenable to efficient and inexpensive oil extraction.

Acid as well as enzymes increased the content of corn fiber oil and its phytosterol compounds by hydrolyzing (and removing) the starch and nonstarch (cell wall) polysaccharides from the wet milled corn fiber. Dual treatment of the fiber with acid and enzyme gave a greater increase in the final concentration of corn fiber oil and its phytosterol components when compared to acid or enzyme treatments alone. Depending upon the treatment, the oil concentration in the residual solids increased from 70 to 807% and the total phytosterol concentration increased by 64 to 710%, compared to the control wet milled fiber sample.

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