

Digestion of Fiber and Increased Crude Protein in Corn Cob

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Corn cob is agricultural by products rich in cellulosic fibers and poor in protein contents (1), therefore to make it available for feeding of ruminants, fishes and poultry need processing to decrease the fibers and increasing the protein contents. Chemical digestion and aerate fermentation had been conducted. Crushed, milled corn cob (0.1 – 0.5 cm) was soaked in 1% NaOH solution and autoclaved for 30 minutes at 121C° and 1.5 Lb/cm³. After cooling, fermentation experiment of 10 % suspended corn cob in distilled water was adjusted to pH 5 and 4% molasses, 1g/L urea were added, inoculated with 50ml/L yeast culture as initial were conducted in Kell fermentor of 20L working capacity under controlled conditions (30 C°, 150 rpm, pH 5 and aeration 2m³/h), experiments duration were 72hrs. Fermentor contents were dried in electric oven at 70 C°. Dried material was homogenized and analyzed for protein content using microkeldal method and for fiber determination using Infra analyzer instruments. Results from digestion and fermentation experiments revealed significant decrease in fiber contents, it was decreased from 41.7% in untreated control to 7.58 ± 1.7%, while the protein was increased from 2.4% in nonfermented control to 16.3%±2.57 in product of fermentation experiment (table - 1). These results indicate a highly improved in feeding quality of corn cob, which can be used successfully for ruminant, fishes and poultry feeding.

Table (1): Percentages of protein and fibers in processed and fermented corn cob

Batch No.	protein%	- x	fibers%	- x
Untreated control	2.4	2.4	41.7	41.7
R20	19.7		6.4	
R21	18.3	16.3±2.57	6.3	7.58±1.72
R22	13.9		9.2	
R23	15.2		6.3	
R24	14.3		9.7	

References:

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الخلاصة

إنّ معالجة مسحوق كوالح الذرة الصفراء كيميائياً وبيولوجياً أدى الى انخفاض معنوي في محتواها من الألياف وزيادة معنوية في كمية البروتين الخام، مما يعني إمكانية استخدامها بنجاح في تغذية الحيوانات المجترة والأسماك والدواجن دون أية أعراض جانبية.