

- Document Type** : Thesis
- Document Title** : *Production of Microbial Protein from Poultry Manure*  
انتاج البروتين الميكروبي من ذرق الدواجن
- Document Language** : Arabic
- Abstract** : Increased size of poultry units and decreased use of poultry manure as a fertilizer has increased interest in developing alternative methods for manure disposal, such as the use of manure as a protein source in animal diets. The major part of the total nitrogen in poultry manure exists as uric acid. The low available energy and uric acid content represent difficulties in the use of poultry manure in animal diets. Thus, uric acid should be converted into a non-toxic form if poultry manure is to be fed to animals. One possibility is to ferment manure with the aid of microbes which use uric acid to produce cell mass. More attention has been paid to yeast than any other group of heterotrophic microorganisms as a source of food and feed. Surplus amounts of poultry manure are now available in Saudi Arabia from several poultry farms, and mainly disposed to the environment. A process which may cause many pollution problems. Therefore, the aim of this study was to eliminate uric acid and to improve the manure nutritional value through the fermentation process. Screening experiments were carried out on several yeasts to select the most potent yeast (*Candida ciferrii*) for uric acid hydrolysis and protein production in a medium containing poultry manure. The study was conducted to evaluate the best cultural and physiological conditions leading to complete hydrolysis of uric acid and maximum production of proteins and energy content of the product. These best conditions were found to be a medium of (g/l): poultry manure, 40;  $\sim\text{HPO}_4$  3;  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ , 1.5; whey one litre; pH 6; yeast inoculum 10%, and incubation for 6 days under shaking at 30:±2°C. Under the optimal conditions, 99.9% of the uric acid was eliminated and 21.21% of a true protein product was obtained. Analyses of the manure and the fermentation products, revealed the improved nutritional quality of the fermented manure to be used as a poultry feed.
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- Publishing Year** : 1997 AH  
1997 AD