

**DEVELOPMENT OF TREATMENT POCEDURE FOR
BREWERY SPENT YEAST SLURRY (*Saccharomyces cerevisiae*)
AS CHEAP PROTEIN SOURCE FOR CATTLE NOURISHMENT**



BY

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ABSTRACT

Brewery spent yeast slurry is a nutritionally rich by-product generated from the brewing process and has the potential to be used in animal nutrition as a cheap source of protein compared to commercial feed formulations with further treatments to reduce the bitterness character by reducing iso- α acid concentration and dissolved alcohol content. Different concentrations of alkaline - sodium hydroxide (NaOH) 0.1N, 1N, 2N, 3N, were used to treat the brewery spent yeast collected from Heineken Lanka Limited at room temperature (28 °C) with fresh water as control to identify the effectiveness with the best removal of bitterness character (iso- α acid), best removal of alcohol with well-preserved yeast cell count. For analysis those parameters were analyzed using the Anton Paar Alcolizer method, spectrophotometer method and nucleocell counter method respectively. It is evident that the bitterness character of brewery spent yeast must be reduced to 2 BU for use in edible purposes. According to the final data analysis, better reduction of bitterness was evident with alkaline treatment compared to the fresh water treatment and 2N concentration of sodium hydroxide (NaOH) was proved as the best treatment to reduce the bitterness of brewery spent yeast at room temperature (28 °C). The resulting bitterness, alcohol and total cell counts were 0.32500 BU, 0.02000 v/v and 1.06×10^5 respectively. To preserve the treated spent yeast, the centrifugal drying method was used and the powder recovering capacity was 49.7%. The sieve analysis proved that the majority of the powder portion (80.40%) is in the 0.50 mm – 0.125 mm diameter range. Active dry yeast powder for crude protein analysis by the semi-micro Kjeldahl method as modified by Bremner, (1965) proved it contains 46.4 % crude protein which can be cheaply used in cattle nutrition comparatively with commercially formulated feed.

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