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EFFECT OF LEGUME FLOURS (SOYBEAN AND MUNGBEAN)
ON THE GROWTH AND NATA PRODUCTION OF
ACETOGENS OR ACETI. SUBSP. X LENTUM ON
COCONUT MILK MEDIUM

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SUBSP. XYLINUM ON COCONUT MILK MEDIUM

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mungbean) on the growth and nata*
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ABSTRACT

SURANTI. University of the Philippines at Los Banos, June 1989.

Effect of Legume Flours (Soybean and Mungbean) on the Growth and Nata Production of Acetobacter aceti subsp. xylinum on Coconut Milk Medium.

Major Professor : Dr. Priscilla C. Sanchez

Soybean (Sy-4) and mungbean (Pag-asa-3) were germinated for 4 days and 3 days at ambient room temperature, respectively. The sprouts were dried at 60-70 °C and then ground into flour.

Different concentrations (0.1-1.0%) of soybean and mungbean sprout flours were tested as additives in diluted coconut milk medium for nata production. Optimum conditions were established based on the following parameters such as sugar, acid, mother liquor concentration, incubation temperature, effect of light and volume of medium.

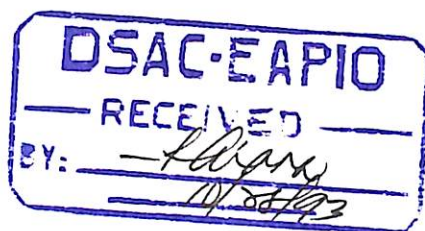
In general, chemical parameters such as total soluble solid, pH, total titrable acidity and total sugar decreased during fermentation while reducing sugar slightly increased as incubation time progressed.

In medium with soybean sprout flour the optimum conditions obtained were 0.35% flour, 8% sugar, 1.5% acid and 15% mother liquor while in medium with mungbean sprout flour the best results were obtained with 0.40% flour, 10% sugar, 1.0% acid and 10% mother

liquor. Nata yield was highest in both medium at 32 °C and in the presence of light. The most economical volume of medium per standard square plastic container was 700 ml or at 3.5 cm height.

Soybean sprout flour and mungbean sprout flour increased the yield of nata to 41.6% and 37.9% respectively grown in diluted coconut milk medium.

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INTRODUCTION

Nata is a popular Filipino food. It is white or cream cartilaginous substance formed by a species of an acetic acid-forming bacterium on the surface of saccharine solutions enriched with fruit juices or other nutritive plant extracts (Lapuz et al., 1962).

Nata is sold in the market as either nata de pina or nata de coco, the trade designation being derived from the medium in which the nata organism is cultivated. Nata can be sold either raw or processed. Nata products in syrup have been a favorite dessert in the Tagalog region. Considered as a holiday food, it is mixed with confectionery to produce candied product and used as an ingredient in ice cream, cocktails, and salads.

Nata production using coconut water, coconut skim milk or pineapple pulp mash in the Philippines depends on the skill and experience of the makers, some of whom are not aware that nata is formed by a living bacterium. This bacterium, like other organisms, is sensitive to variations in the physical and chemical nature of its environment. The failure of many nata makers to massively produce the organism is due to inadequate information on factors conducive to its development.

The growth of nata organism depends on the medium and its constituents like nitrogen source, pH, kind and concentration of sugar, and temperature (Africa, 1949; Lapuz et al., 1962). Nitrogen sources suitable for nata production could be derived from compounds of organic origin (Africa, 1949).