

ISOLATION, CHARACTERIZATION AND IDENTIFICATION OF LACTIC ACID BACTERIA AND YEASTS FROM FERMENTED ORGANICALLY GROWN RICE AND COCONUT MILK

D.M.W.D. Divisekera*, J. Gooneratne and D. Jayawardana

Industrial Technology Institute (ITI), Colombo 07, Sri Lanka

**mb.wasu@gmail.com*

Potential health benefits of probiotic bacteria had led to the isolation of new lactobacilli strains for incorporation into foods. Lactic acid bacteria (LAB) in traditional fermented foods are beneficial for flavoring foods and inhibiting pathogenic as well as spoilage bacteria in the products. This study attempts to isolate and characterize lactic acid bacteria and yeast associated with fermented rice and coconut milk. Organically grown rice, cooked *sudu kekulu* and *rathu kekulu* and raw and heat treated (85^oC) coconut milk were fermented separately at 30^oC for 24 h. in the laboratory. After fermentation, bacteria and yeast were isolated from the foods by appropriate dilutions with saline and plating on *de Man, Rogosa and Sharpe agar* (Hi Media, India) by spread plate technique. A total of twelve single colonies of LAB and yeast were selected randomly, and streaked on MRS agar to examine its purity. Isolates were Gram stained and microscopically examined. Molecular level identification was carried out by extracting DNA from pure cultures of potential LAB and yeast according to an in-house optimized SDS proteinaseK DNA extraction method. 16s rDNA sequencing was carried out at Macrogen-South Korea and Sequence alignment was done by BLAST programme at ITI Laboratory. Three bacteria and six yeast strains were isolated from the fermented foods. Among the isolates, two bacteria namely *Pediococcus pentoseus* and *Kocuria palustris* and two yeast strains namely *Candida tropicalis* RGAUOCAS3i and *Candida tropicalis* RGAUOCAS3 was isolated from fermented *sudu kekulu* rice. One bacterium, namely, *Weissella confusa* was isolated from fermented *rathu kekulu* rice. One bacterium namely *Pediococcus pentoseus* and a yeast *Candida tropicalis* strain S5 was isolated from fermented raw coconut milk, while one bacterium namely *Pediococcus pentosaceus* and four yeast strains namely *Candida tropicalis* RGAUOCAS3, *Candida tropicalis* strain K31b, *Candida tropicalis* isolate ZA030 and *Candida tropicalis* gene for ITS1, strain: TL0301 were isolated from cooked coconut milk. However among the yeast isolates, some strains of *C. tropicalis* reported to be pathogenic to human. *Pediococcus pentoseus* was the common isolate found in cooked and raw coconut milk and *sudu kekulu* rice. All the bacterial strains were Gram positive and rod shaped. It is reported that *Pediococcus* can ferment foods as an individual starter and also symbiotically with other lactic acid bacteria such as Genus *Leuconostoc* and *Lactobacillus*. Bacterial isolate, *Kocuria spp* has been reported to be isolated from traditionally fermented Korean sea food. Studies has shown that *W. confusa* strains could be added as adjunct cultures in combination with other starters for the manufacture of fermented milks such as yoghurt.

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