

PUBLICATIONS

Publications

- **Saikia, D.**, Manhar, A. K., Deka, B., Roy, R., Gupta, K., Namsa, N. D., Chattopadhyay, P., and Mandal, M. Hypocholesterolemic activity of indigenous probiotic isolate *Saccharomyces cerevisiae* ARDMC1 in a rat model. *Journal of Food and Drug Analysis*. Doi: 10.1016/j.jfda.2016.12.017, 2017.
- Manhar, A. K., **Saikia, D.**, Bashir, Y., Mech, R. K., Nath, D., Konwar, B. K., and Mandal, M. *In vitro* evaluation of cellulolytic *Bacillus amyloliquefaciens* AMS1 isolated from traditional fermented soybean (Churpi) as an animal probiotic. *Research in Veterinary Science*, 99: 149–156, 2015.
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- Qureshi, A., Itankar, Y.B, **Saikia, D.**, Mandal, M., and Purohit, J. Bacteria associated with non-alcoholic fermented bamboo shoot food product. *Journal of Microbiology, Biotechnology and Food Sciences*, 6(1): 722–729, 2016.
- Manhar, A. K., Bashir, Y., **Saikia, D.**, Nath, D., Gupta, K., Konwar, B. K., Kumar, R., Namsa, N. D., and Mandal, M. Cellulolytic potential of probiotic *Bacillus Subtilis* AMS6 isolated from traditional fermented soybean (Churpi): An *in vitro* study with regards to application as an animal feed additive. *Microbiological Research*, 186–187: 62-70, 2016.
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- Nath, D., Manhar, A. K., Gupta, K., **Saikia, D.**, Das, S. K., and Mandal, M. Phytosynthesized iron nanoparticles: Effects on fermentative hydrogen production by *Enterobacter cloacae* DH-89. *Bulletin of Materials Science*, 38(6), 2015.

Manuscripts submitted/ under preparation

- Inhibition of food- borne pathogens by bacteriocin producing *Pediococcus pentosaceus* DS1.
- Inhibition of food spoilage isolate *Candida tropicalis* BSS7 expressing virulence factors in a fruit juice model using *Lactobacillus*- derived extracellular metabolites

National/ International Seminars

- **Saikia, D.**, Manhar, A. K., and Mandal, M. Effect of probiotic *Lactobacillus paracasei* D6 on the inhibition of selected food- borne pathogens: an *in vitro* study. In *International Conference of Disease Biology and Therapeutics*, page 162, Institute of Advanced Study in Science and Technology, Guwahati, Assam, India, 2014.
- **Saikia, D.**, Manhar, A. K., and Mandal, M. Probiotic potential of *Pediococcus pentosaceus* DS1 isolated from *khori*, a traditional fermented bamboo. In *National Seminar cum Workshop on Innovative Prospects in Food Processing*, page 44, Department of Food Science and Technology, Tezpur University, Napaam, Assam, India, 2015.

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Original Article

Hypocholesterolemic activity of indigenous probiotic isolate *Saccharomyces cerevisiae* ARDMC1 in a rat model

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ABSTRACT

The aim of this study was to investigate probiotic attributes of *Saccharomyces cerevisiae* ARDMC1 isolated from traditional rice beer starter cake and its hypocholesterolemic effects on Wistar rats fed a high-cholesterol diet. The indigenous isolate ARDMC1 showed potential probiotic characteristics such as tolerance to simulated gastrointestinal stress conditions, autoaggregation properties, and adhesion to intestinal epithelium Caco-2 cell line. In addition, ARDMC1 isolate exhibited *in vitro* cholesterol assimilation properties in media supplemented with cholesterol. Furthermore, administration of probiotic isolate to rats fed a hypercholesterolemic diet resulted in significant reduction of serum total cholesterol, low-density lipoprotein cholesterol, and triglyceride at the end of 42 days. The present study envisages ARDMC1 as a promising starter culture for the preparation of functional foods with properties to combat cardiovascular diseases.

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1. Introduction

Cardiovascular disease (CVD) and its related complications are triggered by elevated serum cholesterol levels and are considered as the leading causes of death worldwide. According to a report published by the World Health Organization, 17.5 million people died from CVDs in 2012, representing 31% of all global deaths and morbidity is expected to increase to 23.3 million by 2030 [1,2].

Several forms of therapy have been reported to prevent CVD; however, the resources available for its management in low and middle-income countries are limited. Statins are the most well-known hypolipidemic drugs, which act as inhibitors of the enzyme 3-hydroxy-3-methylglutaryl-coenzyme reductase essential for the metabolic pathway producing cholesterol and other isoprenoids in the body [3]. However, side effects associated with statins, such as myalgia and muscle weakness, increased fatigue, reduced energy,

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