

3rd World Congress on

NATURAL PRODUCTS CHEMISTRY AND RESEARCH & 12th WORLD PHARMA CONGRESS

October 16-18, 2017 Budapest, Hungary

Extraction, isolation and characterization of Tocotrienol from glutinous black rice variety of North East India and its active nanoformulation against chronicity

Banasmita Devi, Manashi Garg, Rashna Devi and Balagopalan Unni
Assam Downtown University, India

The reported nutraceutical content in Chakhao, the Manipuri aromatic black glutinous rice of North East India has been reported with great value for human health benefit. Besides these, the dietary supplement of anthocyanin rich berries has shown effective in reducing oxidative stress, the risk of cardio vascular disease and cancer with anti-inflammatory, and also inhibits tumor cell proliferation. The present study conducted to evaluate the antioxidant, antibacterial and nutraceutical properties of three colored scented rice varieties grown in North Eastern region showed a significant correlation of all the rice varieties. Antioxidant activity was measured using hydrogen peroxide and 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging assays. The antioxidant activities of the studied samples were expressed as percentage (%) of DPPH and H₂O₂ radicals' inhibition and IC₅₀ value. Among different extracts of crude rice, methanolic extract of the black rice showed highest antioxidant activity compared to the aqueous extract of the other two varieties, each for DPPH (89.29±0.139) as well H₂O₂ (80.97±0.091) with an IC₅₀ value of 40 µg/ml and 42.6 µg/ml respectively. Also the result of MIC against the tested *Staphylococcus* strain was notably found to be effective with a significant value of 119 µg/ml for black rice taken DMSO as the positive control. In further continuation of our research, one of the potent nutraceuticals of black rice, Tocotrienol has been extracted, isolated and characterized for its activity by formulating it in various forms including nanocapsules. As a preliminary work of study, the active compound was evaluated against various few prevalent pathogenic microorganisms in dermatophytic infections. The active compound was re-introduced against various infections aided by a novel nanocapsular drug delivery system. Tocotrienol along with curcumin was encapsulated in a biodegradable polymer (Chitosan) pluronic composite nanocapsule (TOC-Cur-CHI-P NCs) which functions exceptionally well as topical therapeutics and helped to achieve better hydrophilicity, bioavailability and controlled drug delivery with enhanced therapeutic index. The TOC-Cur-CHI-P NCs could encapsulate 98.68% of the active compounds and were found to be stable for around three months duration. The *in vitro* anti-bacterial activity was performed and exhibited significantly enhanced anti-chronicity activity against few isolates. With sustain release kinetics, this novel delivery system for the active compounds could bring into new point of its application. Various studies have been extended for its further application in cancer research.

Biography

Banasmita Devi is a professor of Biotechnology & Biochemistry at Assam Downtown University, India. Her research focus *in vitro* antibacterial activity of biosynthesized silver nanoparticles from ethyl acetate extract of *Hydrocotyle Sibthorpioides* against multidrug resistant microbes.

banasmitadevi@gmail.com

Notes: