

Pharmacognosy, Phytochemistry & Natural Products

October 26-28, 2015 Hyderabad, India

Anthocyanin rich extract from red cabbage (*Brassica oleracea*) reduces oxidative stress and prevents apoptosis in stressed rat cardiomyocytes

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The colorful bioflavonoids are highly publicized for their free-radical scavenging and antioxidant capacities and form the basis of preventive medicine. Anthocyanins have been reported to be protective against a myriad of human diseases including myocardial infarction, atherosclerosis and cancer. This study assesses therapeutic potential of anthocyanin rich extract of *Brassica oleracea* (Red cabbage; ARCE) against experimentally induced oxidative damage in H9C2 (rat cardiomyocytes) cells through a carefully scripted protocol. ARCE was prepared and validated using standard procedures and H9C2 cells were pre-treated with the same (250 µg/ml) for 24 hours. Later, cells were subjected to H₂O₂ (100 µM) induced oxidative stress (12 hours). Cytotoxicity assay showed significantly less (5.86%) mortality in ARCE+H₂O₂ treated group as compared to the H₂O₂ group (48.44%). Also, H₂O₂ treatment accounted for intracellular high oxidative stress and lower mitochondrial membrane potential. The same was comparable to control values in ARCE+H₂O₂ treated groups. Also, the expression of antioxidant (SOD and CAT), apoptosis (BAX and Bcl2) and cardiac marker (Caveolin 3) genes were assessed that further corroborated protective role of ARCE against H₂O₂ induced cardiotoxicity. ARCE pre-treatment also accounted for decreased indices of apoptosis in ARCE+H₂O₂ (19.1%) group as compared to H₂O₂ treated group (57.3%). These observations are first report on cardioprotective potential of anthocyanins from ARCE that add further value to *Brassica oleracea* as a functional food.

Biography

Ranjitsinh Devkar is currently an Assistant Professor at The Maharaja Sayajirao University of Baroda, India. His primary focus is on atherosclerosis and related lifestyle disorders. His work focuses on bioactive compounds of ethnomedicinal origin and their mechanism in alleviating the said diseases in relevant experimental models. He has about 70 publication and conference presentation history and is expanding research into three main areas viz. anthocyanins to alleviate atherosclerotic inflammation and myocardial necrosis, use of functional foods in mitigating atherosclerosis and finding novel therapeutics in an endemic ethnomedicinal Indian herb.

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