

11TH EUROPEAN NUTRITION AND DIETETICS CONFERENCE

June 29-July 01, 2017 Madrid, Spain

***Ribes nigrum L. (Grossulariaceae)* and *Sambus nigra L. (Adoxaceae)* extracts enhance growth and inhibit apoptosis in rat L6 muscle cells**

S Patel¹, T O Lawal^{1,2}, I Salamon³, N Raut¹, S M Wicks⁴ and G B Mahady¹

¹University of Ibadan, Nigeria

²University of Illinois at Chicago, USA

³University of Presov, Slovakia

⁴Rush University, Chicago, USA

Background: Musculoskeletal disorders affect more than one out of every two persons in the United States over the age of 18, and nearly three out of four over the age of 65. One such disease, sarcopenia is age-related and causes a loss in muscle mass and function in the elderly, causing serious morbidity and mortality. Advanced age is associated with increased enhancement of apoptosis in skeletal myocytes. The extent of apoptosis in aging muscle increases as people' age and this increase parallels the loss of both muscle mass and strength. Down-regulation of myocyte apoptosis can be induced by caloric restriction, exercise training, hormone supplements, drugs and various nutrients. In this study we have investigated the effects of berry extracts, specifically *Ribes nigrum* (blackcurrant) and *Sambucus nigra* (elderberry) semi-purified extracts on muscle cell apoptosis in L6-rat muscle cells.

Methods: In this study we investigated the effects of ERGO and D3, and combinations on the growth of all epithelial cancer cell lines. Cell viability and cytotoxicity was determined using the CellTiter-Glo[®] 2.0 assay that measures the amount of ATP present, an indication of the presence of metabolically active cells. Apoptosis was determined with Caspase-Glo[®] 3/7, Caspase 8, ApoTox-Glo[™] Triplex Assay Reagents. In L6 cells, both *R. nigrum* and *S. nigra* ethanol fruit extracts concentration-dependently enhanced the growth of the cells by 300% and 200% respectively.

Results: In serum-starved L6 cells, both extracts prevented L6 cell apoptosis, and in glucose and serum starved cell, the extracts also prevented cell death and apoptosis. Of the anthocyanins present in the extracts, cyanidin-3-glucoside was the most active and enhanced L6 growth by 200%.

Conclusions: These data suggest that fruit extracts reduce muscle cell apoptosis and may be useful for development as a preventative treatment for sarcopenia.

sheilawicksmd@gmail.com