

5th European Nutrition and Dietetics Conference

June 16-18, 2016 Rome, Italy

Methanolic extracts of cooked black bean and cowpea produce G0/G1 arrest in colorectal cancer cells independently of p53 status

Cristina Pereira-Wilson and Catarina Teixeira-Guedes
University of Minho, Portugal

Beans are excellent dietary sources of protein and carbohydrate but their nutritional value is also due to their content in fiber and other constituents such as phenolic compounds. *Phaseolus vulgaris* has been shown to have anti-colorectal cancer (CRC) properties both *in vitro* and *in vivo* in experimental models. Here we extend the characterization of the anti-CRC effects of beans and address the dependence on cancer cell's p53 status for effects on cell cycle modulation. Mutations in the tumor suppressor gene TP53 are present in as many as 50% of CRCs and are responsible for deregulation of cell proliferation and apoptosis evasion as well as for resistance to therapeutic agents. It is therefore relevant to find therapeutic and nutritional strategies that benefit the large group of CRC patients that present p53 alterations. In the present study, two species of beans black and cowpea (*Phaseolus vulgaris* and *Vigna unguiculata*) have been used and phenolic enriched methanolic extracts made from raw and cooked samples. Effects on viability and cell cycle were tested on isogenic HCT116 cell lines p53 wild-type (HCT116+/+) and p53-null (HCT116-/-) and compared to soy extracts prepared in the same way. Results show that relative to control and raw bean extracts, the extracts of cooked black and cowpea beans induced significant G0/G1 arrest in both cell lines whereas soy bean extracts were much less active and only on HCT116+/+ cells. Our data shows that, contrarily to soy, black bean and cowpea may have beneficial effects on CRC patients independently of p53 status.

Biography

Cristina Pereira-Wilson has completed her PhD from the University of Tondheim, Norway and is currently a Professor at the University of Minho, Braga, Portugal. Her scientific interests are in the areas of physiology, biochemistry, nutrition and pharmacology. She has published more than 40 papers in reputed journals.

cpereira@bio.uminho.pt

Notes: