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## Quinoa protective effects against obesity-induced intestinal inflammation

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### Abstract

Quinoa (*Chenopodium quinoa*), contains polyphenols that can reach the colon and provide benefits for intestinal health. Our objective was to investigate the stability of polyphenols in quinoa varieties after cooking and potential effects of quinoa polyphenols in prevention of intestinal inflammation.

Extractable and non-extractable polyphenols were assessed following standard analytical procedures. The obese diabetic (db/db) (obese control) mice and the lean counterparts (lean group) fed with a standard diet were compared to a db/db group fed with an isocaloric Std. diet supplemented with quinoa (quinoa group) for 8 weeks (n=5).

Results showed that among the quinoa varieties analyzed, Cherry Vanilla and Temuko represented the two highest and lowest extremes regarding the contents of extractable polyphenols while Faro and Black represented two extremes for the contents of non-extractable polyphenols. However, these varieties did not reach statistical significance after cooking. Body weight gain was prevented by quinoa consumption ( $\sim 84.87 \pm 1.46\%$  of obese control). mRNA levels of inflammatory cytokines IL-1 $\beta$ , IL-8, and TNF in colonic mucosal cells were similar in lean and quinoa groups, while in obese group were 2.5-, 3.0-, and 6.2-fold of lean controls, respectively. The protective effects of colonic mucosal cells might be due to the polyphenols present in quinoa that also downregulated IL-1 $\beta$ , IL-8, and TNF cytokines in

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## Citing Literature



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