

Fecal water characteristics

Human fecal water content of phenolics: the extent of colonic exposure to aromatic compounds.

Phenolic compounds are not completely absorbed in the small intestine and so enter the colon, where they might exert physiological effects. To identify phenolics that are present in normal human colon, fecal water was prepared from 5 free-living volunteers with no dietary restrictions and analyzed by gas chromatography-mass spectrometry. Daily measurements were also performed on a single individual to examine the variation more closely. Levels of polyphenols were variable between individuals. Naringenin and quercetin had mean concentrations of 1.20 and 0.63 microM. All other flavonoids examined were present \leq 0.17 microM. Simple phenolic and other aromatic acids were present at much higher concentrations. The major components were phenylacetic acid, 479 microM; 3-phenylpropionic acid, 166 microM; 3-(4-hydroxy)-phenylpropionic acid, 68 microM; 3,4-dihydroxycinnamic acid, 52 microM; benzoic acid, 51 microM; 3-hydroxyphenylacetic acid, 46 microM; and 4-hydroxyphenylacetic acid, 19 microM. Other phenolic acids ranged from 0.04 to 7 microM. Decreased dietary phenolic intake caused a decrease in polyphenol and monophenolic acid concentration in fecal water 24 h later. This study is the first to measure the range of aromatic compounds in human fecal water and demonstrates that phenolic acid concentrations are high. The biological effects of phenolics may play an important role in colon function.

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