

Consumption of reishi mushroom has been reported to prevent colon carcinogenesis in rodents, although the underlying mechanisms remain unclear. To investigate this effect, rats were fed a high-fat diet supplemented with 5% water extract from either the reishi mushroom (*Ganoderma lingzhi*) (WGL) or the auto-digested reishi *G. lingzhi* (AWGL) for three weeks. Both extracts markedly reduced fecal secondary bile acids, such as lithocholic acid and deoxycholic acid (colon carcinogens). These extracts reduced the numbers of *Clostridium coccoides* and *Clostridium leptum* (secondary bile acids-producing bacteria) in a per g of cecal digesta. Fecal mucins and cecal propionate were significantly elevated by both extracts, and fecal IgA was significantly elevated by WGL, but not by AWGL. These results suggest that the reishi extracts have an impact on colon luminal health by modulating secondary bile acids, microflora, mucins, and propionate that related to colon cancer.

Water extract of *Ganoderma lingzhi* or reishi mushroom exhibited potential anti-colon cancer effect through modulating secondary bile acids, intestinal microflora, mucins, and propionate.

Novel mechanisms of the anti-colon cancer effect of reishi mushroom

