Abstract

Antibacterial and Cholesterol-Lowering Effects of Tea Saponins

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Saponins are complex compounds widely distributed in the plant kingdom. Each saponin consists of one or more sugar chains attached to a steroid triterpene. Tea seeds contain about 13% by weight saponins, which is an abundant source of saponins. Despite the cultivation and processing of large quantities of tea plants, tea saponins are not a significant product of commerce at the present time, due to the difficulty of isolation and purification.

Traditional methods of extracting and isolating saponins from dry vegetable materials consist of extraction with various alcohols (ethanol, propanol, and methanol). To increase purification of saponin, a defatting step using non-polar solvents such as ether or hexane may be performed prior to the extraction process or on the extraction itself. Crude saponins are then precipitated by washing with acetone or ether.

Saponins have been demonstrated to have anti-microbial properties. One of the goals of this study is to determine the range of antimicrobial activities of saponin and compare its effects with known antibiotics.

To date, the most powerful and potentially groundbreaking effect of eating saponins is the impact on blood cholesterol. Saponins have also been shown to bind with bile salts which results in inhibition of bile reabsorption from the small intestine. The lowered bile salts in the blood results in the liver synthesizing bile salts from blood cholesterol. Saponin also forms insoluble complexes with cholesterol, which leads to inhibition of cholesterol absorption from the digestive tract. This research aims to study these cholesterol-lowering effects of the saponins.E