

Daidzein belongs to the group of isoflavones and is produced almost exclusively by the members of the Fabaceae/Leguminosae (bean) family such as soybean. In one study, Guo et al. (2009) investigated the effects of daidzein on body weight, adipose tissue, blood and liver lipid levels in obese mice fed a high-fat diet, finding that daidzein reduced body and white adipose tissue weights in obese mice and ameliorated the hyperlipidemia induced by the high-fat diet. The authors attributed this effect to the inhibition of pancreatic lipase activity and fat digestion.

Yerba mate is a plant from the subtropical region of South America that is widely consumed in Brazil, Argentina, Paraguay and Uruguay. Yerba mate contains polyphenols, such as flavonoids (quercetin and rutin) and phenolic acids (chlorogenic and caffeic acids) and is also rich in caffeine and saponins (Martins et al. 2010). These substances act on the lipid metabolism by inhibiting pancreatic lipase activity in a concentration value of 1.5 mg/mL (Martins et al. 2010). Several triterpene saponins and monoterpene oligoglycosides from the leaves of yerba mate were found to exhibit potent inhibitory activity on porcine pancreatic lipase (Sugimoto et al. 2009).

Apples (*Malus domestica*) belong to the Rosaceae family whose fruits contain several phenolic substances (chlorogenic acid, catechin, epicatechin, phloridzin and procyanins). Procyanidins in apples are mainly composed of various polymerized catechins, with some of them showing a pancreatic lipase inhibitory activity and reducing triglyceride absorption (Sugiyama et al. 2007). In corn oil-loaded mice, a single oral administration of apple polyphenols reduced plasma triglyceride levels and a test diet containing 600 mg of apple polyphenols significantly inhibited triglyceride elevation at 6 h after ingestion, indicating an inhibition of triglyceride absorption (Sugiyama et al. 2007).

*Salacia reticulata* contains a high concentration of polyphenols, including catechins and condensed tannins. In hot water-soluble extract from the roots of *Salacia reticulata* the concentration is about 24% polyphenols (Yoshikawa et al. 2002). The polyphenols from *Salacia reticulata* inhibit enzymes related to fat metabolism, including pancreatic lipase, lipoprotein lipase and glycerophosphate dehydrogenase and are effective in preventing obesity (Yoshikawa et al. 2002). In fact, *Salacia* extract markedly improved metabolic syndrome symptoms (including body weight, adiposity, glucose intolerance, hypertension and peripheral neuropathy) in mice (Akase et al. 2009).

Dandelion (*Taraxacum officinale*) is a perennial herbaceous plant of the family Asteraceae that has been used as a phytomedicine due to its choleric, antirheumatic, diuretic and anti-inflammatory properties (Zhank et al. 2008). Extracts from this plant have shown hypolipidemic effects and an inhibitory activity of pancreatic lipase, decreasing the area under curve for the postprandial triglyceride response curve (Zhank et al. 2008).

Grapevine (*Vitis vinifera*) has become a model plant for studying proanthocyanidin biosynthesis. Grapevine proanthocyanidins consist of two major flavan-3-ol monomers, catechin and epicatechin (Figure 7.7), that have inhibitory activity on pancreatic lipase (Zhao et al. 2010). Polyphenol-rich extracts from a range of berries, particularly cloudberry, are able to inhibit pancreatic lipase activity *in vitro*, which has been attributed to their content in ellagitannins and proanthocyanidins (McDougall et al. 2009).