



FIGURE 7.9 Structure of ginsenosides.

plasma triacylglycerols due to their inhibitory action of pancreatic lipase on dietary fat. The delay in intestinal fat absorption was also behind the anti-obesity effects observed for Korean white ginseng extract in high-fat diet-induced obese mice (Lee et al. 2010). American ginseng (*Panax quinquefolium*) is a native plant from North America. The saponins isolated from stems and leaves of *Panax quinquefolium* may prevent fat storage in adipose tissue and postprandial elevations of plasma triacylglycerols by inhibiting the intestinal absorption of dietary fat through the inhibition of pancreatic lipase activity (Liu et al. 2008).

Platycodi radix, widely used in traditional oriental medicines as a remedy for respiratory disorders, is rich in saponins, which are responsible for a diversity of effects including anti-inflammation, anti-allergy, antitumor and immunostimulation (Zhao et al. 2010). Given its inhibitory action on pancreatic lipase (Xu et al. 2005), with platycodin-D as the most efficient compound (Zhan and Kim 2004), it ameliorated high fat-induced obesity in mice and rats (Zhao et al. 2010). SK1 is an edible saponin-rich compound from *Platycodi radix* that is able to reduce body weight and fat accumulation by increasing faecal lipid outputs in high-fat fed mice (Kim et al. 2009).

The methanolic extract from the pericarps of *Sapindus rarak* (Lerak) shows a pancreatic lipase inhibitory activity that is probably due to diverse saponins and sesquiterpene glycosides (Morikawa et al. 2009). Different triterpenoid saponins isolated from the Mongol and Chinese traditional medicinal herb *Scabiosa tschiliensis* have shown strong inhibition of pancreatic lipase *in vitro* (Zheng et al. 2007). Due to the difficult task of isolating scabiosaponins and the scarceness of this type of saponin in nature, some of them have been successfully synthesized in the laboratory (Guo et al. 2009).

At least three kinds of tea (oolong, green and black) have been used as healthy drinks. Tea saponins suppress the increases in body and parametrial adipose tissue weights and adipocyte diameters induced by a high-fat diet in mice by inhibiting