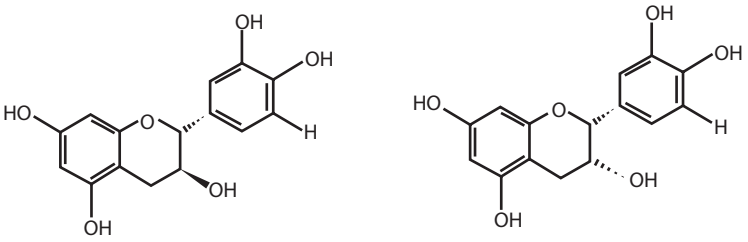

FIGURE 7.7 Structure of catechin and epicatechin.

7.4 SAPONINS AS ANTI-OBESITY AGENTS

Saponins are a major family of secondary metabolites that occur in a wide range of plants species (Sparg et al. 2004). These compounds have been isolated from different parts of the plants, including the roots, rhizomes, stems, bark, leaves, seeds and fruit (Vincken et al. 2007). Saponins are categorized into two major classes, the triterpenoid and the steroid saponins, which are both derived from the 30 carbon atoms containing precursor oxidosqualene (Haralampidis et al. 2002). Some of the triterpene-rich plant materials are common foodstuffs consumed in large amounts in Mediterranean countries. Therefore, the correlation of a triterpene-rich diet and the beneficial effects of consuming a Mediterranean diet should be investigated in more detail (Jager et al. 2009). These types of plant secondary metabolites are found to inhibit pancreatic lipase and, thus, may represent potential effective treatments for obesity and related disorders (Slanc et al. 2009).

The Japanese horse chestnut (*Aesculus turbinata*) is a medicinal plant widely used in East Asia. The saponin mixture extracted from the seeds is called escins (Figure 7.8) and has a strong inhibitory activity on pancreatic lipase (Kimura et al.

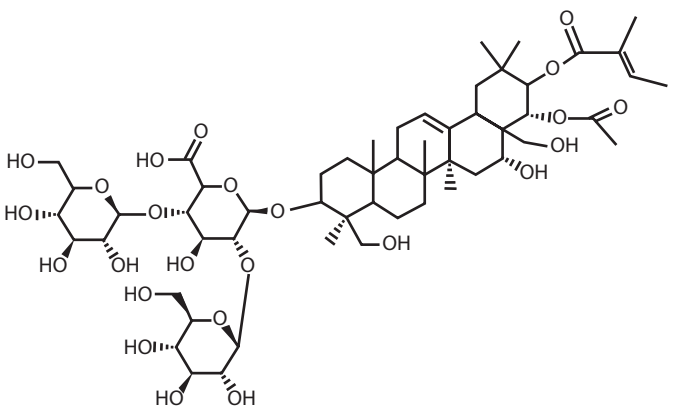

FIGURE 7.8 Structure of escin saponin.