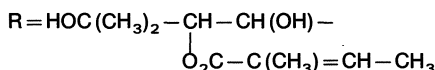
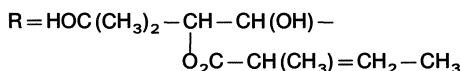


Angelol A (17-36), B (17-37):

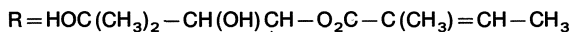


Angelol C (17-38), F (17-41):

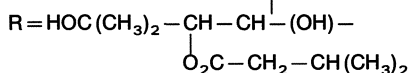


Angelol D (17-39), G (17-42)

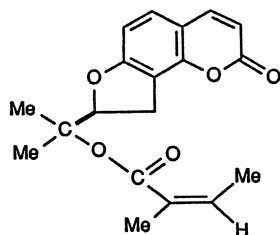
H (17-43):



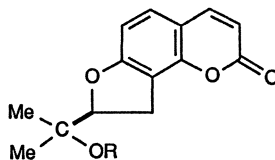
Angelol E (17-40):



Chen et al. have isolated osthol, osthenol, bergapten, and the furo-[2,3-*h*]-benzopyran-2-one derivatives columbianadin (17-44), columbianetin (17-45), and columbianetin acetate (17-46) from the root of *A. pubescens* and *A. pubescens* f. *biserrata* [27, 28].



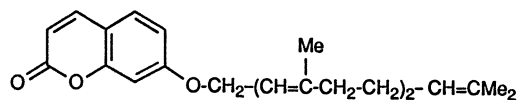
Columbianadin (17-44)



Columbianetin (17-45): R=H

Columbianetin acetate (17-46): R=Ac

From the fruits of *A. pubescens*, nine coumarins were isolated and identified as osthol, byakangelicin, byakangelicol, oxypeucedanin, umbelliferone, umbelliprenin (17-47), imperatorin, neobyakangelicol, and *sec-O*-acetylbyakangelicin (17-19) [29].



Umbelliprenin (17-47)

17.2.4 Chemical Constituents of Other *Angelica* Species Used in Chinese Folk Medicine

17.2.4.1 Chemical Constituents of *Angelica apaensis*

From the root of *A. apaensis* the furocoumarins oxypeucedanin, isoimperatorin, oxypeucedanin hydrate, byakangelicol, byakangelicin [30], pabulenol (17-48), and a new compound, apaensin (17-49) [31], were isolated. The structure of apaensin was determined on the basis of spectral analyses.