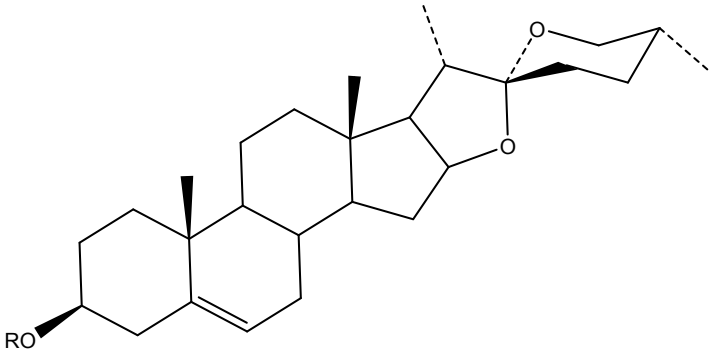
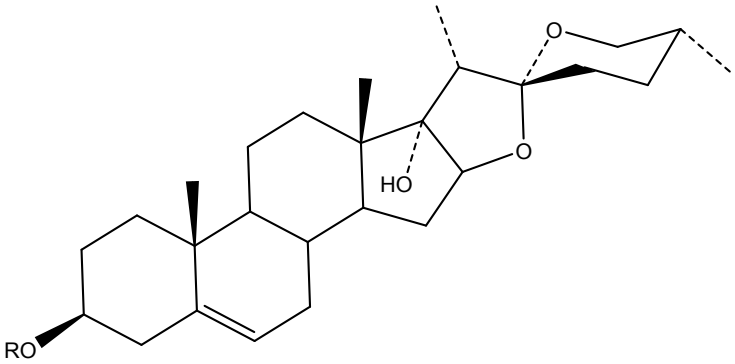
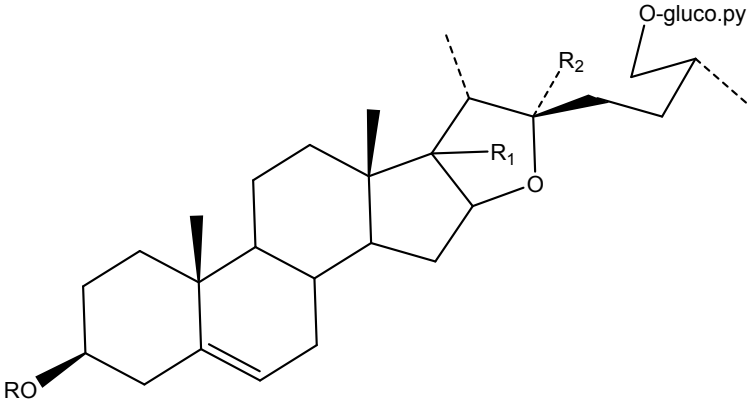
Electronic Supplementary Material (ESI) for RSC Advances.



A. Structure of diosgenin (R = H)

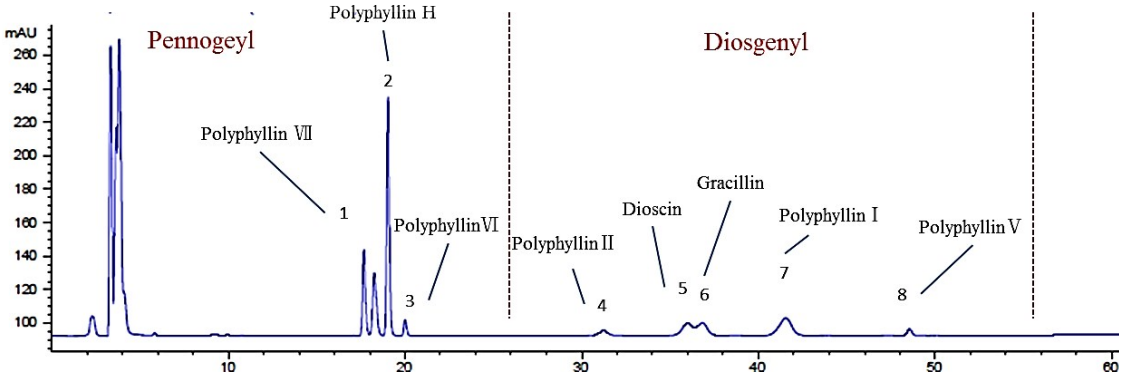


B. Fig. 2 Structure of pennogenin (R = H)



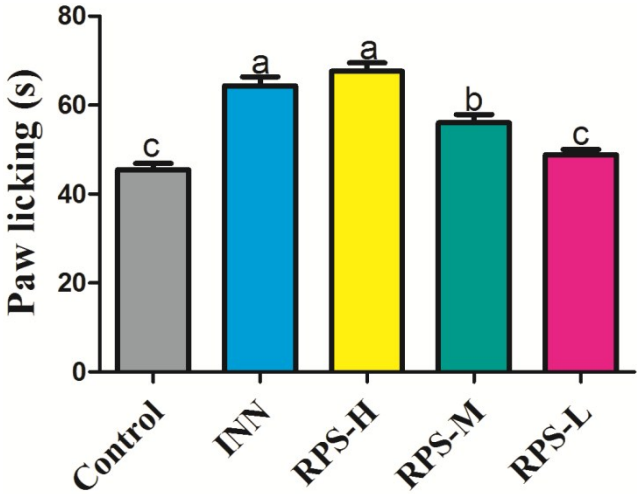
C. Structure of prototype saponins

Supplementary Figure 1. Saponins with diosgenin, pennogenin, or prosapogenin and their congeners as the aglycones constitute the most abundant types of steroid saponins in PRS.



Supplementary Figure 2. HPLC–ELSD chromatograms of RPS (1. Polyphyllin VII, 2. Polyphyllin H, 3. Polyphyllin VI, 4. Polyphyllin II, 5. Dioscin, 6. Gracillin, 7. Polyphyllin I, 8. Polyphyllin V).

The chemical composition of RPS was qualitatively identified utilizing HPLC-ELSD by retention time with standard mixture solution. Fig. 1 shows the HPLC chromatograms of RPS. The contents of Polyphyllin VII (t_R 17.590 min), Polyphyllin H (t_R 18.964 min), Polyphyllin VI (t_R 19.674 min), Polyphyllin II (t_R 31.110 min), Dioscin (t_R 35.712 min), Gracillin (t_R 36.568 min), Polyphyllin I (t_R 41.823 min) and Polyphyllin V (t_R 48.450 min) were 8.51±0.09 mg/g, 24.18 ± 1.40 mg/g, 2.70 ± 0.12 mg/g, 6.46 ± 0.16 mg/g, 20.24±0.86 mg/g, 41.03±1.62 mg/g, 24.91 ± 0.67 mg/g and 3.12±0.28 mg/g, respectively.



Supplementary Figure 3. Analgesic effect of INN and RPS with three dosages on normal mice in hot-plate test. Each value represents the mean ± SE. Values within treatment groups having different letters are significantly different by one-way ANOVA and Student's t-test. Letters a-c, means with the same letter is not significantly different ($p < 0.05$).