Herbal Pharmacology

Saponins, Phytosterols

Class Abstract

Saponins

Mills&Bone p.44-47, p.67, Ginseng monograph (p.635)


![glycyrrhizin](image)

![dioscin](image)
**KEY POINTS:** Glycosides, steroidal or triterpenoid. Soap-like with sugar moiety being hydrophilic. Act both whole and as aglycones. Interact with hormone (corticosteroid / sex) systems. Increase hepatic cholesterol synthesis and excretion. Interact with immune system. Often toxic by injection.

**Extraction:** Water is often excellent. Forms foam.

**Areas of action:** Gut, lymphoid tissue, liver, pituitary, kidney/adrenals.

**Pharmacokinetics:** Micelle formation, various degrees of de-glycosylation in small intestine, though some absorbed whole. Rapid plasma entry (90 min), clearances often longer (8-12h half-lives), perhaps due to enterohepatic recycling. Excreted in bile, some kidney.

**Representative species:** Glycyrrhiza, Panax, Actaea, Saponaria.
Phytosterols:

**Mills&Bone Saw Palmetto monograph, pp. 805-810**


**KEY POINTS:** May compete with cholesterol, affect plasma cholesterol and lipids (favorably). Hormonal effects are possible – animal endocrine disruptors. Notable prostatic anti-inflammatory effect.

**Extraction:** eaten as food, lipid or high ethanol (70%+) extraction

**Areas of action:** GI tract, liver, hormone receptor sites, prostaglandin synthesis site(s) prostate esp.

**Pharmacokinetics:** Mills & Bone Saw Palmetto (p.810). Good oral bioavailability, esp. with fats. Peak plasma levels 90 min, half-life short (2h). Frequent (TID) dosing

**Representative species:** Sereona, Urtica, Glycine