

## 36 *Sapindus mukorossi* Gaertn. (Ariwtaka)

Drug consists of dried fruit of *Sapindus mukorossi* Gaertn. (A & B); Fam. Sapindaceae. The plant is a deciduous tree, found in lower hills, from Himachal Pradesh eastwards and in Assam, ascending to an altitude of about 1500 m, both cultivated and wild.



A. Twigs with fruits



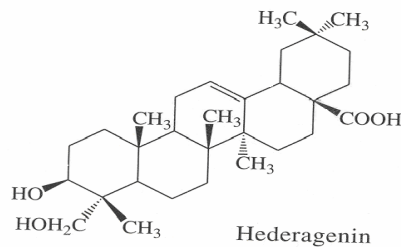
B. Fruits

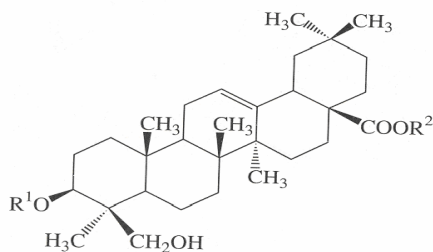
*Sapindus mukorossi* Gaertn.

### Chemical Constituents

#### Major

Saponins : sapindosides A, B, C, D, E<sup>1-5</sup>, saponin A, saponin C<sup>5</sup>, mukorosside<sup>6</sup>, saponins of hederagenin called mukorozi-saponins E<sub>1</sub>, G, X, Y<sub>1</sub>, Y<sub>2</sub>, Z<sub>1</sub>, Z<sub>2</sub> of which mukorozi-saponins E<sub>1</sub> and G are 3-*O*-glycosides of hederagenin (monodesmosides) and mukorozi-saponins Y<sub>1</sub>, Y<sub>2</sub>, Z<sub>1</sub>, Z<sub>2</sub> are 3,28-di-*O*-glycosides of hederagenin (ester type bisdesmosides)<sup>7</sup>; mukorozi-sides Ia, Ib, IIa and IIb<sup>8</sup>; seed kernel oil contains lauric acid, palmitic acid, stearic acid, arachic acid, arachidic acid, oleic acid, linoleic acid, linolenic acid, oleanolic acid, eicosenoic acid, triolein and eicoseno-di-oleins<sup>9,10</sup>.





Sapindoside A  $R^1 = \alpha\text{-L-Ara}(1\rightarrow2)\alpha\text{-L-Rha}$   
 $R^2 = \text{H}$

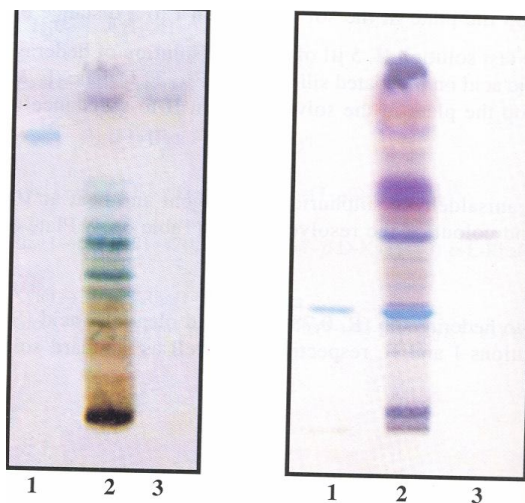
Sapindoside B  $R^1 = \alpha\text{-L-Ara}(1\rightarrow2)\text{-}\alpha\text{-L-Rha}(1\rightarrow3)\text{-}\beta\text{-D-Xyl}$   
 $R^2 = \text{H}$

Sapindoside C  $R^1 = \beta\text{-D-Glc}(1\rightarrow4)\text{-}\beta\text{-D-Xyl}(1\rightarrow3)\text{-}\alpha\text{-L-Rha}(1\rightarrow2)\text{-}\alpha\text{-L-Ara}$   
 $R^2 = \text{H}$

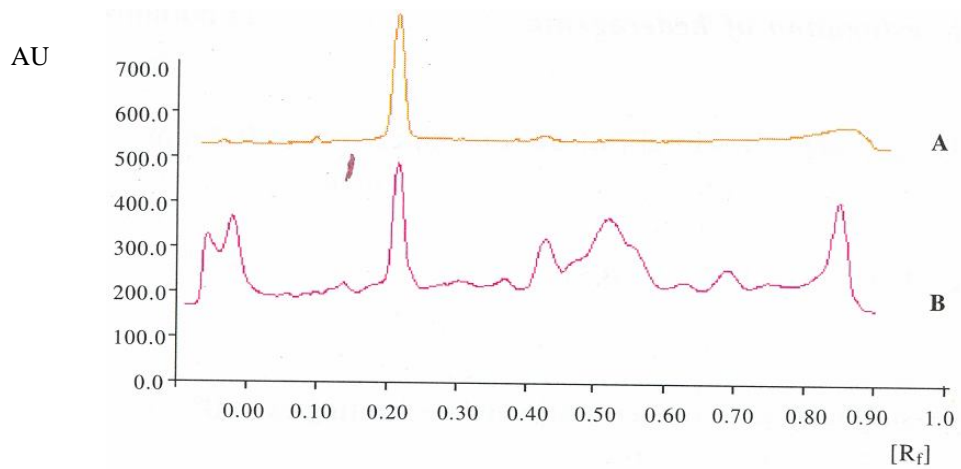
Sapindoside D  $R^1 = \alpha\text{-L-Rha}(1\rightarrow6)\text{-}[\text{Glc}(1\rightarrow2)]\beta\text{-D-Glc}(1\rightarrow4)\text{-}\beta\text{-D-Xyl}(1\rightarrow3)\text{-}\alpha\text{-L-Rha}(1\rightarrow2)\text{-}\alpha\text{-L-Ara}$   
 $R^2 = \text{H}$

Sapindoside E  $R^1 = \beta\text{-D-Xyl}(1\rightarrow3)\text{-}\alpha\text{-L-Rha}(1\rightarrow2)\text{-}\alpha\text{-L-Ara}$   
 $R^2 = \beta\text{-D-Glc}(1\rightarrow2)[\alpha\text{-L-Rha}(1\rightarrow6)]\text{-}\beta\text{-D-Glc}(1\rightarrow4)\text{-}\beta\text{-D-Xyl}(1\rightarrow3)\text{-}\alpha\text{-L-Rha}(1\rightarrow2)\text{-}\alpha\text{-L-Ara}$

### TLC Details



TLC profile of *Sapindus mukorossi* fruit. **A.** Test solution I; **B.** Test solution II. **1:** Hederagenin standard; **2:** Test solution; **3:** Oleanolic acid standard.



TLC densitometric scan at 595 nm. **A.** Hederagenin standard; **B.** Test solution of *Spindus mukorossi* fruit.