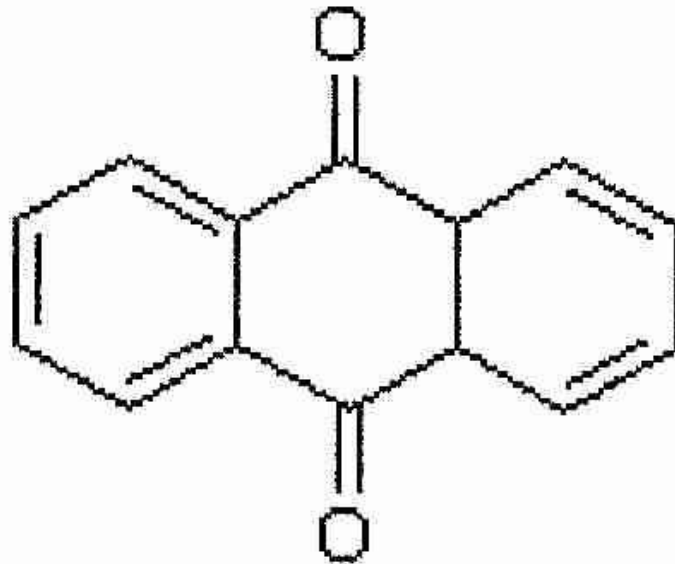


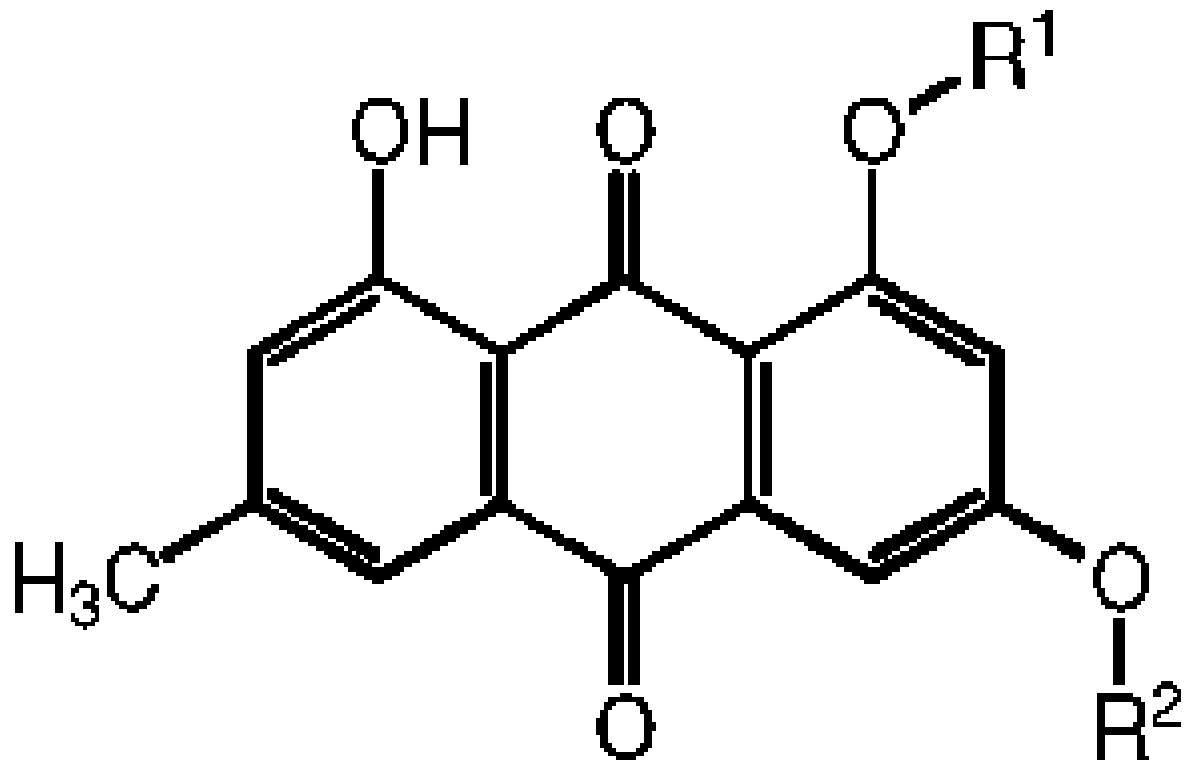
GLYCOSIDES

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Anthraquinone Glycoside





Introduction to Anthraquinones

Historically: Rhubarb, Senna, Aloes and
.Cascara were all used as purgative drugs

.Monocotyledons: Only Liliaceae

.Most commonly C-glycoside: barbaloin

Dicotyledons: Rubiaceae, Leguminosae,
Polygonaceae, Rhamnaceae, Ericaceae,

Euphorbiaceae, Lythraceae, Saxifragaceae,

Scrophulariaceae and Verbenaceae. Also in certain fungi
and lichen

Reduced derivatives of anthraquinones

Oxanthrones, anthranols and anthrones –

Compounds formed by the union of 2
anthrone molecules

Dianthrones

:Aglycones

Chrysophanol/Chrysophanic acid

.Rhubarb and Senna

Rhein , Rhubarb and Senna

Aloe-emodin, Rhubarb and Senna

Emodin , Rhubarb and Cascara

Anthraquinones – Chemical Properties

Anthraquinone derivatives: orange-red compounds

.Soluble in hot water/dilute alcohol

Identified via **Borntrager's test**

Powdered drug – macerated with ether –

Filter –

Add ammonia/caustic –

Shake , pink, red or violet colour – positive for –
anthraquinone derivatives

If the Anthraquinones are reduced (within the herb) or –
stable (glycosides) test will be negative

Anthranonls and Anthrones

Reduced anthraquinone derivatives

.Occur either freely (aglycones) or as glycosides

.Isomers

Anthrone: Parent structure (pale yellow, non-soluble in alkali, non-fluorescent)

Anthronol:(brown-yellow, soluble in alkali, strongly fluorescent)

Anthronol derivatives (e.g. in Aloe – have similar – properties – fluorescence used for identification)

Senna - Leguminosae

Definition: Consists
of the dried leaflets of
Cassia senna
(Alexandrian senna),
or *Cassia angustifolia*
(Tinnevelly senna)

Senna - Constituents

Senna consist four types of glycosides •Sennoside A,
Sennoside B, Sennoside C, Sennoside D

In their active constituents are sennoside A, sennosides B

Upon hydrolysis of sennosides it gives two molecules □

.glucose+aglycones: Sennidin A and Sennidin B

Sennoside C & Sennoside D •

Rhein

Aloe-emodin

Palmidin A (Rhubarb)

Senna – Constituents

Kaempferol (yellow
flavanol)

glucoside +
kaempferin

Mucilage

Calcium oxalates

Resin

Cascara Bark- Rhamnaceae

Definition: Official cascara sagrada is the dried bark of *Rhamnus purshianus*. Bark is collected from wild trees depletion is leading to the increase of cultivation

Cascara Bark – Constituents

Four main glycosides – Called •
Cascarosides

Cascaroside A –Cascaroside B –

Cascaroside C –Cascaroside D —O-glycosides ,Derived from
Emodin –Emodin oxanthrone –Aloe emodin –chrysophanol

Cascara Bark - Uses

Purgative

Similar to Senna

Normally as a tablet

Also used on animals

Rhubarb - Polygonaceae

Definition: Rhubarb/Chinese •

Rhubarb is the rhizome of

Rheum palmatum.

Rhubarb - Constituents

Free anthraquinones:

chrysophanol, emodin, aloe.

emodin and rhein

Some of the above constituents

.may also occur as glycosides

Rhubarb - Uses

Bitter stomachic

Diarrhoea (low doses)– contains tannins

Purgative (high doses) followed
by an astringent effect

Suitable only for occasional for
occasional use, not for chronic constipation

Thank you.....
