



C-GLYCOSYLFLAVONOIDS AND HOMOEOPATHY

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ABSTRACT

Homoeopathic tincture may act due to presence of active C-glycosylflavonoids and other flavonoids. Flavonoids have antioxidant property is well known, but a class of flavonoid C-Glycosylflavonoids apart from antioxidant property have different pharmacological properties, identification, separation is done but purification of C-Glycosylflavonoids and individual study of such separated and purified flavonoids in vitro and vivo is still lacking.

INTRODUCTION

Plants/ herbs having such C-glycosylflavonoids are used in ayurveda, homoeopathy and herbal medicine and some traditional system of medicine for various disorder. It is very difficult to understand and correlate that the disease is cured or relief of symptoms is by such potent C-glycosyl flavonoids or by other type of flavonoid or some other phytochemical when used in crude form. More focus should be done of separation of flavonoids from single plant or herb and to test each compound in in vitro and in vivo for its biological activity. It is also important to consider the stability of such isolated flavonoids and whether it is possible to prepare any dosage form of such potent flavonoids in near future. Plenty of papers have been written on various extract and very few paper and work is done on isolated flavonoids in vivo and in vitro.

HOMOEOPATHIC MOTHER TINCTURE

lot of plant /herbs ethanolic extract are used by many of the homoeopaths (3). Use mother tincture in homoeopathy, most of the plants have c-glycosyl flavonoids. Use of tincture in practice on basis of homoeopathy laws have shown improvement in many chronic case cases or palliation of symptoms do occur when case is incurable. It is very difficult to co-relate whether the relief of symptoms is due to potent C-glycosyl flavonoid occurring in such plants or due to other phytochemical present in ethanolic extract when tincture are used. Many of them use extreme dilution like 6, 12, 30, 200 or 1m potency (1,3) depending upon the susceptibility of the patient. It becomes more difficult when extreme dilution of such extract are used. To ascertain whether the action is due to nano form (Chikramane et al 2010) of some phytochemical or beyond nano form (Top Layer Retains Nanoparticles despite Bulk Form Dilution Chikramane et al Langmuir 2012) they exist some property which brings the disturbed dynamic homoeostasis back to normal or it produces any change in cellular signal transduction or it obeys the law of quantum mechanics. (S. Lloyd 2011 J. Phys.: Conf. Ser. 302 012037)

Test for Flavonoids:

Many homeopathic mother tincture shows positive reaction to flavonoids in vitro.

Ferric chloride test – Test solution when treated with few drops of Ferric chloride solution would result in the formation of blackish red color indicating the presence of flavonoids.

Alkaline reagent Test – Test solution when treated with sodium hydroxide solution, shows increase in the intensity of yellow color which would become colorless on addition of few drops of dilute Hydrochloric acid, indicates the presence of flavonoids.

Botanical relationship- Interestingly, C-glycosylflavonoids were found in Bryophyta, Ferns, Mono- and Di- Cotyledoneae.

Classification- C-glycosylflavonoids

Mono-C-glycosylflavonoids

Di-C-glycosylflavonoids

O-glycosyl-C-glycosylflavonoid

O-acylated-C-glycosylflavonoids

O-acylated-C-glycosylchromones.

Plants used in homoeopathy (mother tincture form) and having c-glycosyl flavonoids few examples given in table with classification.

Naturally occurring mono- C –glycosyl flavonoids

Sr no	Name of the plant	Family	c-glycosyl flavonoid
1	Citrus aurantifolia	Rutaceae	Api-8-C- \square -D-glucopyranoside (Vitexin) Api-6-C- \square -D-glucopyranoside (Isovitexin)
2	Cucumis sativus	Cucurbitaceae	Api-8-C- \square -D-glucopyranoside (Vitexin) Api-6-C- \square -D-glucopyranoside (Isovitexin) Lut-8-C- \square -D-glucopyranoside (Orientin) Lut-6-C- \square -D-glucopyranoside (Iso-orientin or Homo-orientin)
3	Mimosa pudica	Fabaceae	Api-8-C- \square -D-glucopyranoside (Vitexin) Api-6-C- \square -D-glucopyranoside (Isovitexin) Lut-8-C- \square -D-glucopyranoside (Orientin)
4	Passiflora incarnata	Passifloraceae	Api-8-C- \square -D-glucopyranoside (Vitexin) Api-6-C- \square -D-glucopyranoside (Isovitexin) Chr-6-C- \square -D-glucopyranoside (Isoscoparin) Chr-8-C- \square -D-glucopyranoside (Scoparin) Lut-6-C- \square -D-glucopyranoside (Iso-orientin or Homo-orientin) 4',5-Dihydroxy-7-methoxyflavone-6-C- \square -D-glucopyranoside(Swertisin)
5	Rheum	Polygonaceae	Api-6-C- \square -D-glucopyranoside (Isovitexin)
6	Viola tricolor	Violaceae	Chr-6-C-hexoside Lut-6-C-hexoside
7	Aloe vera	Liliaceae	2-[(S)-2-hydroxy]propyl-5-methyl-7-methoxy chromone-8-C- \square -Dglucopyranoside*

Di-C-glycosyl flavanoids

Sr no	Name of plant	family	c-glycosylflavonoids
1	Citrus aurantifolia	Rutaceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2) Dio-6,8-di-C- β -D-glucopyranoside
2	Citrus aurantium	Rutaceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2) Dio-6,8-di-C- β -D-glucopyranoside
3	Glycyrrhiza glabra	Fabaceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2) Api-6-C- β -L-arabinopyranosyl-8-C- β -D-glucopyranoside (Isoschaftoside)
4	Passiflora incarnata	Passifloraceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2) Api-6-C- β -D-glucopyranosyl-8-C- β -L-arabinopyranoside (Schaftoside) Api-6-C- β -L-arabinopyranosyl-8-C- β -D-glucopyranoside (Isoschaftoside) Lut-6,8-di-C- β -D-glucopyranoside (Lucenin-2)
5	Rheum rhabarbarum	Polygonaceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2) Api-6-C- β -D-glucopyranosyl-8-C- β -L-arabinopyranoside (Schaftoside) Api-6-C- β -L-arabinopyranosyl-8-C- β -D-glucopyranoside (Isoschaftoside)
6	Salvia officinalis	Lamiaceae	Api-6,8-di-C- β -D-glucopyranoside (Vicenin-2)
7	Viola tricolor	Violaceae	Api-6-C-rhamnopyranosyl-8-C-glucopyranoside (Violanthin) Api-6-C-pentosyl-8-C-hexoside Api-6-C-hexosyl-8-C-pentoside Api-6-C-deoxy-hexosyl-8-C-hexoside Api-6-C-hexosyl-8-C-deoxy-hexoside Api-6,8-di-C-hexoside Lut-6-C-deoxy-hexosyl-8-C-hexoside Lut-6-C-hexosyl-8-C-deoxy-hexoside
8	Lycopersicon esculentum	Solanaceae	Phloretin-3'',5''-di-C- β -D-glucopyranoside

Such flavonoids have antioxidant, anti-inflammatory, anti-ulcer property.

Discussion

From the table it is clear that most of the plants contain flavonoid and most of them are widely used in homoeopathy in tincture form. Passiflora incarnata (2) is used in convulsion, sedative, for insomnia and in asthma and in person with anxiety with hypertension, anxiety with insomnia (2). Passiflora is having c-glycosyl flavonoid but apart from antioxidant property it shows other pharmacological action.

Conclusion

Unknowingly it may be a possibility that C-glycosylflavonoids present in homoeopathic tincture may have a potent biological activity and due to the presence of such potent phytochemical flavonoids they could give relief when used in tincture form.

Further study needed

Extreme diluted form i.e. potency like 6, 12, 30, 200 and 1m (1,3) one has to investigate about the nano form of such flavonoids or beyond nano form if one can investigate what happens to such potent flavonoids.

Also one must investigate single separated and purified flavonoid in milligrams to nano or picograms or beyond nano both in vivo and vitro in order to understand the mechanism of action of homeopathic medicine.

Reference –

- 1) Homoeopathic materia medica and repertory by – William Boericke.
- 2) Mother tincture in homoeopathy.-y sinha.
- 3) Text book of homoeopathic pharmacy –Baneerjee.