CHEMICAL CONSTITUENTS AND DESCRIPTIVE PROPERTIES OF SAPONARIA VACCARIA PLANT: A REVIEW

Hayder Yousif Falih1, Suhad Y. Abed2 and Zahraa F. Shaker3

1Department of Basic Sciences, Dentistry Faculty, Mustansiriya University, Baghdad, Iraq
2Department of Biology, Science faculty, Mustansiriya University, Baghdad, Iraq.

* Corresponding author: hayderyousiffalih@uomustansiriya.edu.iq

Abstract

*Saponaria vaccaria* L. (cow cockle) is monotypic genus from family Caryophyllaceae is a yearly Herb broadly dispersed over Asia, Europe, What's more other parts of the universe. Those seeds about this plant would referred to universal Chinese solution Likewise Wang-Bu-Liu-Xing, which will be endorsed for the medicine from claiming amenorrhea, breast infections, and the incitement about lactation. Those warm Saponaria vaccaria

Keywords: *Saponaria vaccaria*, Cow cockle, Seeds, Saponins, Flavonoids, Root, Glycosides.

Introduction

For centuries, most plants and herbs have been used to treat various wounds, diseases, and injuries. As these powerful active substances found in plant parts were extracted and purified for use in the pharmaceutical industries, especially in the past few decades, for the purpose of treating the human race (Shrestha and Baik, 2011). *Saponaria vaccaria* L. (cow cockle) (Goering et al., 1966; Alex, 1968; Mazza et al., 1992; Duke and Bogenschutz, 1994; Ferrie et al., 2009). 'Pink Beauty (Hakkaart and Van Olphen, 1971; Hakkaart, 1972; Lawson and Hearon, 1974)

*Saponaria vaccaria* (Vaccaria segetalis, Vaccaria hispanica; Caryophyllaceae) this plant will be an yearly herb should an extensive degree spread in Asia, Europe Also Different parts of the globe. The seeds of this plant would referred to for universal Chinese drug Concerning illustration Wang-Bu-Liu-Xing, which will be specified of the help about menopause, breast infections, breast-stimulating (Kernan and Ferrie, 2006; Meesapyodsuk et al., 2007). The thermic accessibility is particular temperature and thermic Diffusivity from claiming *S. vaccaria* 'monotypic genus' (KOÇYİĞİT, 2018) Seed particles were decided at temperatures going starting with 25°C will 55°C, dampness content starting with 15. 35% with 80% dry basis, What's more powerful thickness from 516. 5 should 1328. 05 kg m⁻³ (Hearon and Lawson, 1980; Hearon and Lawson, 1981; Shrestha and Baik, 2010). Maximum germination was obtained at 2 h for cow cockle (Hsiao, 1979). A few accessions of *Saponaria vaccaria* need Awhile ago been investigated as An possibility new crop to those northern extraordinary plains region, owing mostly of the phenomenal agromania qualities about this species and the secondary content of a unique, little-grained starch. (Balsevich et al., 2006). This plant has been used in herbal medical fields (Hayder et al., 2020). For anticancer Also anti-infective exacerbates the rate of pills with regular items Similarly as their hotspot need expanded with In 60% (Shrestha and Baik, 2020). Its poisonous quality against worms, Parmecium, and other unicellular organic entities is additionally news in incredible Plains region, owing primarily of the fantastic agromania qualities about this species. This plant has been used in herbal medical fields to Anticancer Furthermore anti-infective there mixes the rate of pills with regular results concerning illustration their sourball need expanded on through 60%. Its poisonous quality against worms, Parmecium, and different unicellular organic entities is additionally news person. *S. vaccaria* was present in only 4% of the same surveys.

Keywords: *Saponaria vaccaria*, Cow cockle, Seeds, Saponins, Flavonoids, Root, Glycosides.

Vernacular Names

There are large portions basic names to *S. vaccaria* plant in Pink Beauty, White Beauty, Cow Cockle, Soapwort, *Vaccaria segetalis, Vaccaria hispanica* (Schmidt et al., 2007; Khare, 2008).
**Fig. 1**: Leaves and flowers of *Saponaria vaccaria* L. plant

**Medicinal use for *Saponaria vaccaria***:
*S. vaccaria* utilized to cough, bronchitis, stomach disorders, bone deformations, rheumatism, pimples, skin diseases, bile disorders, hepatic eruptions, venereal ulcers, respiratory framework diseases, jaundice, & pee remover, the adhesive sap utilized as febrifugal, in unending fevers, medicine for furuncles & scabies (Chandra and Rawat, 2015).

**Table 1**: Phytochemistry review

<table>
<thead>
<tr>
<th>Plant part</th>
<th>Constituent reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves</td>
<td>Triterpenoid saponins, Steroidal saponins (Frechet, 1991).</td>
</tr>
<tr>
<td>Fruit</td>
<td>Triterpenoid saponins, Steroidal saponins, Steroidal glycoalkaloids (Morrisey, John, 1999)</td>
</tr>
<tr>
<td>Root</td>
<td>Triterpenoid saponins, Steroidal saponins (Frechet, 1991).</td>
</tr>
<tr>
<td>seeds</td>
<td>Protein 12% to 15%; oil 3% to 4% What's more starch 65% to 70%, alkaloids, cyclopeptides, phenolic, steroids and saponins (Sang et al., 2003; Ho et al., 2003; Condie et al., 2011) glycosides of triterpenes, Flavonoids, fatty acids (Biliaderis et al., 1993; Balsevich et al., 2012).</td>
</tr>
</tbody>
</table>

**Saponins of *S. vaccaria***

Happening to encountered with urban decay because of deindustrialization, engineering imagined, government lodgin. Vaccaria seeds are glycosides of triterpenes. The principle sorts from claiming saponins relate of the quillaic corrosive sort and these accounts to more or less 65% about downright saponins, likewise exhibit would gypsogenin bisdesmosides, gypsogenic acid monodesmosides and vaccaric acid bisdesmosides (Ramirez-Erosa, 2008; Pelegrini et al., 2008; Doughari, 2012; Garai, 2016).

**Glycosides of *S. vaccaria***

The corrosive hydrolysis about vaccarin offered a mixture for two substances for flavonoid way and sugars (D-glucose Furthermore L-arabinose) which were recognized chromatographically. The extent of the joined together flavonoid substances shaped looking into hydrolysis added up should 60% of the weight of the introductory glycoside. Consequently, around corrosive hydrolysis one atom every for glucose Furthermore arabinose might have been part off. The flavonoid results about corrosive hydrolysis were differentiated with respect to a section from claiming polyamide sorbent. Both these substances, Additionally demonstrated on make glycosides, in any case they were not cleaved by the ordinary hydrolysis for acids, undergoing shared isomerization to structure an harmony mixture following constantly warmed for 10% hydrochloric corrosive for 3 hours. Ahead hydrolysis for Kiliani's mixture, these exacerbates provided for apigenin and, Likewise sugars, D-glucose with a little sum for D-arabinose. On the premise of these properties, both flavonoids must a chance to be C-glycosides (Baeva et al., 1979).

**Flavonoids of *S. vaccaria***

Flavonoids in *Saponaria vaccaria* are pathologically important to the plants aerial plant parts such as stem, leaf and flower and seeds. that study to flavonoid content Kaempferol and quercetin were identified in plant parts and callus tissue culture from *S. vaccaria*, on the basis of their RF values in different solvent systems, UV fluorescence, colours on exposure to ammonia and spraying reagents Kaempferol which is a strong antimicrobial substance has been reported from many plant species (Harborne, 1964).

**Conclusion**

*Saponaria vaccaria* one of the medicinal plant which widely used in traditional medicine and distribution in different countries specially A Asia, Western Europe What's more various parts of the universe and containing many active ingredients in all types of plant specially in stem, leaf and flower and seeds. that study to flavonoid content Kaempferol and quercetin were identified in plant parts and callus tissue culture and polyphenols which responsible for abundant biology activity, pharmacologic uses like antinociceptive effects, Anti-oxidant efficiency, hepatoprotective efficiency, Anticancer activity, hypercholesterolemia, diabetes and fertility unrest.

**Acknowledgments**: The creators might want on thank Mustansiriyah university [www. uomustansiriyah.edu.iq] Baghdad, Iraq of its help in the exhibit worth of effort.
References


