

1 Unani Description of Sumaq Rhus Coriaria Linn. and its 2 Scientific Report

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6

7 **Abstract**

8 Plants have played a vital role in the prevention and treatment of diseases since prehistoric
9 times. WHO estimates that 65

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11 **Index terms**— rhus coriaria, sumaq, unani medicine.

12 **1 Introduction and History**

13 Rhus coriaria Linn . is commonly known as Sumaq and the leaves have long been well known in Europe and in the
14 East.. It belongs to the family Anacardiaceae 1 .

15 Theophrastus and Dioscorides described it as the fruit of plant used for tanning. Abu Hanifeh in his "Book
16 of plants " says that Sumaq has bunches of small, intensely red berries, and it does not grow in part of the land
17 of the Arabs except Syria 2,3 . The fruit rind of Sumaq is commonly known as Post Sumaq which is medicinally
18 used and has astringent property. 4 a) Taxonomical Classification Kingdom:

19 Plantae, Sub kingdom: Tracheobionta, Super division: Spermatophyta, Division: Magnoliophyta, Subclass:
20 Rosidae, Order: Sapindales , Family: Anacardiaceae, Genus: Rhus, Species: Rhus coriaria Bionomial name: Rhus
21 coriaria Linn. continent as follows: Persian: Samaka, Samak, Sumaq, Hindi: Tatrak, Tatri, Arabic: Timima,
22 Tamtam, Sumak, Urdu: Sumaq, English: Sumach, Sumak, Sanskrit: Tandidik, Bengali: Sumok, Kashmiri:
23 Samak, Chokmusur, Marathi : Sumak, Punjabi: Minas, Ninawa, Samakdana, Tungla. ??, II.

24 **2 Habitat and Distribution**

25 The plant is globally distributed in temperate and tropical regions and can grow on marginal lands. The plants
26 have shallow spreading root system that prevent soil erosion and can grow on poor eroded soil. Most common
27 sumac grown commercially on global scale is R. coriaria in Mediterranean and Middle East, having been cultivated
28 for several centuries to produce a material of high quality for tanning. It is found growing naturally in region of
29 Mediterranean, South east and central and northern regions of Turkey 6,7,8 a) Botanical Description R. coriaria
30 is a 1-3 meter heigh shrub or small tree. The leaves are imparipinnate with 9-15 leaflets. The inflorescence is
31 a compact and erect panicle, the flowers are small and greenish white. The fruits are a small flattened drupe
32 the size of the lentil of red colour, containing one lenticular polished brown seed 3,8 b) Description of Sumaq
33 As Reported In Unani Literature Sumaq is a fruit of a plant of Rhus coriaria. This plant grows on hard soil its
34 height is up to 2 meter. Leaves are large and reddish in colour. Fruits aggregate equal to the size of the Mako
35 (Solanum nigrum). The peel of the fruit is bitter in taste. The bitterness is increased when fruit ripes properly.
36 There are two varieties of Sumaq 1. Sumaq Bustani (Garden Sumach) 2. Sumaq Kohi (Mountain Sumach),
37 Mountain Sumach has more dryness than that of Garden Sumach 9 .

38 Part Used Medicinally Fruit, fruit rind, extract and peel is used in Italy 10 .

39 **3 Mizaj (Temperament)**

40 Cold and Dry in 2 degree 11,12 Pharmacological actions Qabiz (astringent) , Habisuddam (styptic), Maqawwie
41 Medah (stomachic) , Hazim (digestive) , 1. It is used to increase the protection property of mucosal layer of
42 stomach, it protects stomach and intestinal irritation due to bile. 2. It is used in the treatment of nausea and

8 B) ANTI DIABETIC AND ANTIOXIDANT ACTIVITY

43 safrawi qai wa safrawi Diarrhoea. 3. Sumaq is used to prevent haemoptysis 4. Due to astringent property Sumaq
44 is used to strength the mucous membrane of stomach as well as intestine 5. Sumaq is also used in haemorrhage in
45 any part of the body due to presence of tannins 6. The sanoon of Sumaq is also used in stomatitis and Pyorrhoea
46 7. The Joshanda of Sumaq is used for black and shining hairs 8. Sumaq is also used in dysentery 9. The massage
47 of Sumaq is very useful in warts of piles 10. The fine powder of post Sumaq is mixed with alcohol and used in
48 leucorrhoea and menorrhagea 11. In conjunctivitis its Qutoor is very useful. Mazarrat (Toxicity) 17 For chest and
49 liver (For cold temperament person) Musleh (Correctives) 9 Mastagi (Pistacia lentiscus), Anisoona (Pimpinella
50 anisum) and Badiyan (Foeniculum vulgare Mill.) Badal (Substitutes) Sirka (Vinegar), Zarishk (Berberis vulgaris)
51 ?? Miqdare khurak (Dose) 11,16 4-5gm 3-5gm Murakkabat (Compound formulations) 1. Hubb-e-Sumaq 18 2.
52 Qurs-e -Ziabaetus 19 3. Jawarish Tabasheer 19 4. Annushdar Sada 17 5. Jawarish Zarishk 19 6. Sufuf Shahatrah
53 19 c) Description of Sumaq (Rhus coriaria Linn.) as given in Modern Literature
54 The modern description of Sumaq can be studied under the following categories:III.

55 4 Geographical Distribution

56 Sumaq (Rhus coriaria Linn.) belongs to the family Anacardiaceae. This family has 60 genera and some 600
57 species; mainly tropical shrubs and trees. Rhus includes 250 species. Sumaq leaves used in dyeing, tanning and
58 fruits as a medicine The leaves have long been well known in Europe and in the East.

59 Theophrastus and Dioscorides described it as the fruit of plant used for tanning. Abu Hanifeh in his "Book of
60 plants " says that Sumaq has bunches of small, intensely red berries, and it does not grow in part of the land of
61 the Arabs except Syria 2, 3 . The fruit rind of Sumaq is commonly known as Post Sumaq which is medicinally
62 used and has astringent property.

63 5 a) Macroscopic Features

64 Fruit: Small dark brown, hairy , hard, laterally compressed drupe; 3.5to 4.0 cm in length and 2 to 2.5 cm in
65 width; persistent calyx. 20 Seed: Small, 0.3 to 0.5 cm in length and 0.2 to 0.3 cm in width; brown polished
66 and hard, odour spicy. 20 b) Microscopic Features Fruit: Transverse section shows cuticle and a single layered
67 epidermis with characteristic horn shaped multicellular trichomes , mesocarp 5or 6 layered cells are thin walled,
68 parenchymatous, filled with oil bodies and tannin , endocarp tissue crushed. The fragments of the epidermal
69 fruit wall cells in surface view are polygonal and moderately thick walled ; show the presence of abundant ,
70 small circular cicatrices with the epidermal cells radiating around it. 20 Seed: Transverse section of mature seed
71 shows testa differentiated into a radially much elongated thick walled outer layer of palisade cells filled with some
72 brownish contents; followed by a layer of elongated but much smaller radial cells with lignified walls ; the inner
73 integumentary cells are also composed of radially much elongated thick walled palisade cells, similar to outer
74 layer ; endosperm tissue with numerous oil globules followed by tissues of the embryo present. The fragments of
75 the dark brown testa in surface view show uniformly thick -walled, almost square or rectangular cells. 20 Powder:
76 Powder is dark brown , bitter in taste;

77 shows characteristic in horn-shaped multicellular trichomes, large and small palisade cells from testa, fragments
78 of fruits walls with cicatrices; testa of the seeds; embryo and oil globule. 20 IV.

79 6 Scientific Studies a) Phytochemical studies

80 Phytochemicals in R. coriaria are being used as antibacterial, antidiarrheic, antidiarrheic, antidiarrheic, antihepatotoxic,
81 antiseptic, antispasmodic, antiviral, astringent, candidicide, hepatoprotective, hepatotonic, protisticide, analgesic,
82 anti-gastric, anti-inflammatory, antioxidant, antiulcer, fungicide, cyclooxygenase-inhibitor and lipoxygenase
83 inhibitor due to their contents of ellagic acid, gallic acid, isoquercitrin, myricitrin, myricetin, quercetin, quercitrin
84 and tannic acid . 21 Volume XIII Issue VII Version IYear 013 2 () B V.

85 7 Pharmacological Studies a) Antibacterial activity

86 The hydro alcoholic extracts of Rhus coriaria ripe berries were studied against five clinical bacterial strains
87 (Methicillin-resistant Staphylococcus aureus (MRSA), multi-drug resistant Pseudomonas aeruginosa, enteric
88 hemorrhagic Escherichia coli O157 (EHEC), Proteus vulgaris and Klebsiella pneumonia). Bacillus subtilis
89 ATCC6633 was used as a reference strain. The zone of inhibition varies depending on bacterial species and
90 type of extract. The results showed that the antibacterial activity of R. coriaria was more effective against
91 Gram-positive bacteria than Gram-negative 21 .

92 8 b) Anti diabetic and antioxidant activity

93 Single dose administration of the extract significantly reduces postprandial blood glucose by 24% (at 5 hrs). In
94 the long term experiment, on the day of 21, postprandial blood glucose (PBG) was found to be significantly lower
95 (by 26%) compared to diabetic control group. The plant extract raised markedly serum high-density lipoprotein
96 (HDL) by 34% and also reduced low-density lipoprotein (HDL) by 32%. Also it had noticeable antioxidant effects
97 by elevating superoxide dismutase (SOD) and catalase(CAT) activities by 46% and 77%, respectively. However
98 it did not show a strong effect on glutathione peroxidase (GPX) activity. The extract inhibited maltase and

99 sucrase activities by 44% and 27%, respectively. However it made no changes in the transcript levels of INS and
100 GLUT-4 genes. It can be concluded that constituents of *Rhus coriaria* fruits have effective components which
101 can be utilized as useful herb for alleviation of diabetes complications 22.,

102 **9 c) Anti hyperlipidemic activity**

103 In an experiment, one-day-old broiler chickens (Ross 308) were used to investigate the effects of sumac fruit
104 (*Rhus coriaria* L.) powder (SFP) on plasma concentrations of total cholesterol (TC), triglyceride (TG), high
105 density lipoprotein (HDL-c), low density lipoprotein (LDL-c), very low density lipoprotein (VLDL-c) and plasma
106 fasting blood sugar (FBS), as well as proportional abdominal fat.. The birds were fed the basal diet (Z-SFP) or
107 diets supplemented with 2.5 g SFP (L-SFP), 5 g SFP (M-SFP) and 10 g SFP (H-SFP) per kg diet. During the
108 whole experimental period the H-SFP birds had a higher feed intake than the Z-SFP and L-SFP birds, though
109 the H-SFP birds had higher feed conversion ratio compared with birds in the other treatments. No significant
110 differences for body weight gain were recorded between the treatments. The M-SFP and H-SFP birds had lower
111 plasma.

112 TC and VLDL-c concentrations than the Z-SFP and L-SFP birds. No significant differences between the
113 treatments were indicated for plasma TG, HDL-c and LDL-c concentrations. Moreover the plasma FBS
114 concentration of the H-SFP birds was lower than the birds in treatments Z-SFP and L-SFP, but no significant
115 differences were observed between the other treatments 23 .

116 **10 d) Antifungal activity**

117 Phytochemical investigation of the ethanolic extracts of the seeds *Rhus coriaria* Linn. (Anacardiaceae) afforded
118 three new aromatic compounds identified as 1-methoxy-4-hydroxy-methylene naphthalene (coriarianaphthyl
119 ether), 7-methoxy-5-methyl benzene-4-al-oic acid(coariariaoic acid) and 1-dodecanoxy-2,8-dihydroxy-anthracene-
120 15oic acid (coriarianthracenylester) along with known phytoconstituents ntetracosane, n-pentacosane, anise
121 alcohol, p-hydroxy benzyl alcohol, methyl lawsone and 2-hydroxyl methylene naphthaquinone. The structures of
122 all the isolated compounds have been identified on the basis of spectral data analysis and chemical reactions. All
the new compounds showed the antifungal activity 24 . ¹



Figure 1:

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