VI. On the real origin of that resin known under the name of sandarac, and that of Gum Arabic

M. Schousboe

To cite this article: M. Schousboe (1799) VI. On the real origin of that resin known under the name of sandarac, and that of Gum Arabic , Philosophical Magazine Series 1, 5:19, 239-242, DOI: [10.1080/14786449908677147](https://doi.org/10.1080/14786449908677147)

To link to this article: <http://dx.doi.org/10.1080/14786449908677147>

Published online: 18 May 2009.

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Let the first variety of filiceous ores be supposed to contain, filex 12, clay 8, lime 5 = 25.

For an assay of 4 troy ozs. of ore	-	or 1920 grains,
add 4	—	chalk — 1920
3	—	bottle glafs — 1440
$0\frac{3}{4}$	—	charcoal — 360
<hr/>		<hr/>
11 $\frac{3}{4}$		5640

And, lastly, let the second variety of this genus of iron-stone be supposed to contain, filex 10, lime 7, clay 5 = 22.

To 4 troy ounces of the ore	-	or 1920 grains,
add 3 $\frac{1}{2}$	—	chalk — 1680
3	—	bottle glafs — 1440
$0\frac{3}{4}$	—	charcoal — 360
<hr/>		<hr/>
11 $\frac{1}{4}$		5400

Clafs of equalifed mixtures, compofed of, clay 7, lime 7, filex 7 = 21.

To assay of this ore	4 troy ounces	or 1920 grains,
add	$3\frac{1}{2}$ ——— bottle glafs	— 1680
	$2\frac{1}{2}$ ——— chalk	— 1200
	$0\frac{1}{2}$ ——— charcoal	— 240
	<hr/>	<hr/>
	$10\frac{1}{2}$	5040

VI. *On the real Origin of that Refin known under the Name of Sandarac, and that of Gum Arabic.* By M. SCHOUSBOE *.

GUM Sandarac is an article of trade brought from the fouthern provinces of the kingdom of Morocco. About fix or feven hundred quintals of it are exported every year from Santa Cruz, Mogador, and Saffy. In the language of the country it is called *El graffa*. The tree which produces it is a *Thuia*, found also by M. Vahl in the kingdom of

* From a Danish Journal, entitled, *The Physical, Medical, and Economical Library*, Part III. 1799.

Tunis*. It was made known several years ago by Dr. Shaw, who named it, *Cypressus fructu quadrivalvi, Equiseti inflar articulatis*; but neither of these learned men was acquainted with the economical use of this tree; probably because, being not common in the northern part of Barbary, the inhabitants find little advantage in collecting the resin which exudes from it. This resin hitherto has been ascribed to the *Juniperus communis*, *Juniperus Lycia*, or the Cedar of Lebanon, without reflecting that the *Juniperus communis* does not grow in Africa, and Sandarac seems to belong exclusively to that part of the world. M. Schoufboe, who saw the species of *Thuia* in question, says that it does not rise to more than the height of twenty or thirty feet at most, and that the diameter of its trunk does not exceed ten or twelve inches. It distinguishes itself, on the first view, from the two other species of the same genus, cultivated in gardens, by having a very distinct trunk, and the figure of a real tree; whereas in the latter the branches rise from the root, which gives them the appearance rather of bushes. Its branches also are more articulated and brittle. Its flowers, which are not very apparent, shew themselves in April; and the fruit, which are of a spherical form, ripen in September. When a branch of this tree is held to the light, it appears to be interspersed with a multitude of transparent vesicles which contain the resin. When these vesicles burst in the summer months, a resinous juice exudes from the trunk and branches, as is the case in other coniferous trees. This resin is the Sandarac, which is collected by the inhabitants of the country, and carried to the ports, from which it is transported to Europe. It is employed in making some kinds of sealing-wax, and in different sorts of varnish. In 1793 a hundred weight of it cost in Morocco from 13 to 13½ piastres, which make about 3*l.* 5*s.* to 3*l.* 7*s.* and 6*d.* sterling. The duty on exportation was about 7*s.* 6*d.* sterling *per* quintal.

Sandarac, to be good, must be of a bright-yellow colour, pure and transparent. It is an article very difficult to be

* A complete description of it, with a good figure, may be found in his work entitled, *Symbol. Botan.* Part II. p. 96. Plate XLVIII. under the name *Thuia articulata*.

adulterated.

adulterated. Care, however, must be taken that the Moors do not mix with it too much sand. It is probable that a tree of the same kind produces the gum sandarac of Senegal, which is exported in pretty considerable quantities.

Another article of commerce in which the kingdom of Morocco participates with Senegal, is that gum called Gum Arabic, known by the name of *Al leilk*. The tree which produces it grows only in the southern provinces of that state. The quantity of this article exported to the different parts of Europe from the ports of Morocco may amount to about eight or nine quintals. M. Schoufboe says, that this tree is the *Mimosa nilotica*, named in the country *Al thlab*; but this is no reason why the same kind of gum should not be collected in the more southern countries of Africa from the *Mimosa Senegal*, and even from other trees of the same species, as we are told by various authors. In Barbary the people make a difference between the gum of Senegal and that of the country. The former is preferred on account of its purity, whiteness, and transparency, which in general are the properties sought for in this article.

The gum which I collected myself in the province of Mogador, says M. Schoufboe, exudes from the trunk and branches of the tree, in the same manner as that of our fruit-trees. It is in round lumps, of the size of a hazle-nut, or rather that of a walnut. These lumps, indeed, by becoming united to each other, form masses sometimes of the size of the fist, or even of the head; but this only happens in consequence of the adhesion which takes place between the pieces of gum, when still fresh, after they have been detached from the tree, and chiefly at that part which was attached to the bark, where the resinous juice has not had time to harden. If earth, small stones, and other foreign bodies, are sometimes found in these masses, it arises from fraud; and M. Schoufboe suspects that this circumstance has given rise to the opinion of the gum being found at the bottom of the tree, and that it exudes from the roots, which, as he thinks, is void of foundation. Were this the case, it appears to him that, besides the earth and sand with which the gum is accidentally dirtied, balls of these matters ought to be found

in the inside, and even so mixed with the mucilaginous substance that it would be impossible ever to purify it completely; while, on the other hand, the gum which comes from Senegal is still purer than that of Barbary.

M. Schoufboe, however, observes, that the sandarac and gum exported from the port of Saffy have a brown or reddish colour; but he ascribes this colour to the quantity of the red oxyd of iron mixed with the soil of the province of Abda, where this port is situated. This oxyd communicates its colour even to the white wool; and the inhabitants of that province may be distinguished by the reddish tint of their clothes, which cannot be entirely destroyed by any process. In the months of July and August, when heavy dews fall, the gum loses a great deal of its transparency, as well as of its other good qualities. A hundred weight of this substance cost at Mogador, in 1793, about 2*l.* sterling, without including about 4*s.* custom-house duty. The gum does not appear to be employed by the inhabitants of Morocco for any purpose whatever: the whole of what they collect is sold to the different commercial nations of Europe.

VII. *On the Pestilential Diseases which, at different times, appeared in the Athenian, Carthaginian and Roman Armies, in the Neighbourhood of Syracuse. By the late E. H. SMITH, Physician*.*

SECTION I.

SYRACUSE, the most beautiful of all the cities built by the Greeks, was founded by Archias, a Corinthian, of the race of Hercules*. He first expelled the natives from Ortigia, where he commenced the city, which was afterwards extended to the neighbouring continent. This place, so celebrated in ancient history, the birth-place of Archimedes, and theatre of many memorable transactions, now reduced to a miserable town, of inferior consequence even in Sicily, is situated in north latitude 37° 5', a little above Cape Passara

* From the *American Medical Repository*, Vol. II. No. 4.

† Cicero in Ver. Act. II. Lib. iv. § 117. Thucydides, B. vi.

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