



LXXI. Observations on catechuic acid

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LXXI. *Observations on Catechuic Acid.* By JOHN THOMAS COOPER, Esq.*

A SHORT time since I was requested to visit a tannery where the principal tanning ingredient employed was catechu, and among other matters my attention was directed to a whitish substance which made its appearance on the external surface of the leather when the tanning process was completed, and the uniform appearance of this substance over the whole surface is considered by the proprietors as the test of the perfection of their process of tanning, which is usually accomplished in about fourteen days. The tanning liquor is prepared by making an imperfect solution of the catechu in warm water, or in the liquor that has been previously partially exhausted of its tannin by a former operation; the depilated hides in their usual state are sewn up so as to form water-tight bags, into which the tanning liquid, prepared as above, is placed, so as to completely fill them; they are then placed on floors and turned once or twice a day into every possible position to expose the hide as equally as possible to the action and pressure of the tanning liquid, and as the process of tanning advances the appearance of this white matter becomes more and more evident, until at length it covers the entire surface of the leather, and sometimes acquires considerable thickness and solidity. In this state, however, it is contaminated with many impurities, and after repeated trials to obtain it in a state fit for examination, I found the following simple method to answer the purpose I had in view very well. The matter, as obtained by scraping from the surface of the leather, was thrown on a filter of linen cloth and washed with cold water until the water passed through very nearly colourless; by this means a quantity of tannin, mucilage, extractive matter, and a peculiar substance, which I have not yet examined, were removed; the matter remaining on the filter was then treated with hot water, either by washing it on the filter, or which is better, by removal into a basin and heating it with three times its bulk of water to near the boiling point, when a brown-coloured solution was obtained, and by filtering this while hot in a warm place, the substance which has the characters of catechuic acid, catechine, or tanningenic acid, is deposited as it cools, but the deposition of the whole I find does not take place until many hours after it has become cold, therefore, after a lapse of about twenty-four hours, it may be thrown on a filter and washed with cold water, in which

* Communicated by the Chemical Society; having been read December 18, 1843.

it is nearly insoluble, until the water passes through colourless, or very nearly so, and then dried slowly by exposure to a gentle heat; in this manner the specimen herewith presented to the Society has been prepared, and which, if examined, will be found to possess the properties described as appertaining to catechine, catechuic, or tanningenic acids, namely, a white substance with a light tint of reddish-brown, a glistening or micaceous aspect when diffused in water, meagre to the feel, something like alumina, insolubility in cold water, and ready solubility, to a great extent, in hot water; forming a brown solution of greater or less intensity in proportion to the quantity dissolved; readily soluble in alcohol and æther, and in the weakest alkaline solutions, without the assistance of heat, forming brown compounds; and with the assistance of heat becoming dark brown, or almost black, owing, it is said, to the absorption of oxygen from the atmosphere, and its conversion into what is called japonic acid, fusible *per se* into a resinous looking substance by the cautious application of heat, and if heated much beyond its fusing point becoming charred, leaving a very bulky charcoal.

If it be considered desirable to undertake the organic analysis of this substance, in all probability the specimen presented may require further purification, and by adopting the process recommended by Svanberg, namely, forming it into a catechuate of lead, and decomposing this by sulphuretted hydrogen while warm, may in the hands of others be effectual for the purpose, but I confess it has not succeeded well with me.

Catechu.

12.3	Water.
62.8	Tannin.
8.2	Extractive or colouring matter.
2.	Resinous matter.
8.5	Mucilaginous or gummy matter.
4.4	Insoluble matter.
<hr/>	
98.2	

Cutch.

12.8	Water.
47.7	Tannin { 41.5 tannin.
	6.2 altered tannin.
9.2	Extractive or colouring matter.
13.6	Mucilaginous or gummy matter.
6.8	Resinous matter.
9.4	Insoluble matter.
<hr/>	
99.5	