

The writer, an experienced hospital pharmacist, is of the opinion that the physician, when prescribing for his patient, has only one thought—the action of the drug he orders. Differences in rotations, and the fact that one drug may be obtained from one member of a certain family, and another from another member of the same family—both having a common botanical origin—does not interest the physician; he wants results.

There is no doubt about this Australian sandalwood oil being fully equal in medicinal value and therapeutic effect to the official sandalwood oil and, moreover, is better tolerated by the patient. The mere fact—that owing to sandalwood oil being introduced into medicinal use from India, where in the regions of Mysore, and other territory, “the rulers of the country have from time immemorial, exercised a monopoly over *Santalum album* and its oil”—should not prevent the legal use of Australian sandalwood oil as a recognized medicine, if it meets the requirements of the medical profession in therapeutic value.

In regard to the chemical constituents of the official sandalwood oil, distilled from *Santalum album*, the percentage of santalol furnishes the basis of the official test; therefore, the following analyses made by various well-known chemists, and one from the Australian Government Customs Control, are presented.

SANTALOL CONTENT OF AUSTRALIAN SANDALWOOD OIL.

Seil, Putt & Rusby, New York	Percy May, London	Australian Customs	W. H. Simmons, London	Requirements of U. S. P.
1928	1918	1927	1927	
94.65%	90-96%	92.5-96%	95%	90%

The conclusion is reached by the author that, as the value of sandalwood oil as a medicinal agent depends entirely on its santalol content, Standardized Australian sandalwood oil, obtained from *Santalum spicatum*, should receive recognition in the Pharmacopœia so that it may be legally used as a medicine in the United States.

SILVER-ION CONCENTRATION OF COLLOIDAL SILVER GERMICIDES,
III.*

THE TITRATION OF SOLUBLE IODIDES IN COLLOIDAL SILVER IODIDE.

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That colloidal silver iodide contains a small excess of free sodium iodide is evident when one considers that the p_{Ag} of colloidal silver-iodide preparations as will be shown in this paper is between 12.5 to 14.0 and the silver-ion concentration of pure silver iodide as was shown in the first paper of this series¹ is equivalent to a p_{Ag} of 7.95. It is also possible to demonstrate the presence of soluble iodides by dialyzing the silver-iodide preparation against distilled water in a beaker and titrating the dialysate but this method has never given satisfactory results.

Previous work¹ had shown that it was possible to obtain smooth curves when colloidal silver preparations were titrated with soluble iodides using a silver elec-

* Scientific Section, A. Ph. A., Portland meeting, 1928.

¹ Jour. A. Ph. A., 14 (1925), 10.

trode. Since a titration of the soluble iodide in a colloidal silver preparation with AgNO_3 would simply be a reversal of this titration, a series of these titrations were made against various experimental batches of colloidal silver iodide. The electrodes were prepared by treatment with hot 1.0% KCN as previously described.¹ In the first of these titrations 100 cc. of colloidal silver iodide $N/10$ with respect to silver was titrated with $N/10$ silver nitrate. This concentration of silver nitrate proved too strong but the titration was continued until 100 cc. of the silver nitrate had been added to 100 cc. of the colloidal silver-iodide solution. At this point the p_{Ag} of the solution was equivalent to that of a $N/20$ silver-nitrate solution. This indicates that there was no adsorption of silver ions by the colloid. A series of seven samples $N/10$ with respect to silver were titrated with $N/100$ silver nitrate and with this strength of reagent a relatively sharp break occurs in the curve at the point where all the soluble iodide has been titrated. The end-point may be determined either by plotting the titration curve or by the method of increments. This method consists in determining the value of the increments of voltage for each equal addition of titrating reagent. The end-point lies within the range of the largest increment and the position of the end-point within the increment can be determined accurately as follows. Let the three increments considered be called A, B and C in the order of titration with B the longest increment. Then the position within increment B will be $B \times C/A + C$. This is added to the reading at the end of increment A to give the true end-point. This method of increments is shorter and fully as accurate as plotting the titration curve. At the same time that the samples were titrated the conductivity of the solutions to be titrated was also determined in order to detect the presence of any other conducting material beside soluble iodides which might be present in the solution. Sample G was prepared in a different manner from the other samples and was known to contain other inorganic salts besides sodium iodide and it will be noted that this fact is evident from the increased conductivity of this sample. The following is a table of the results of the titrations.

TABLE OF TITRATIONS.

Sample.	Specific resistance ohm cm. ¹	p_{Ag} .	Cc. $N/100$ AgNO_3 .	Per cent NaI.
A	385	12.54	0.63	0.26
B	396	12.86	0.996	0.41
C	412	13.12	1.610	0.67
D	143	14.03	12.80	4.90
E	295	13.10	1.96	1.96
F	395	13.31	1.83	1.83
G	235	12.61	1.90	0.46

CONCLUSION.

1. A method has been developed for titrating soluble iodides in the presence of colloidal silver iodide by the use of the silver electrode.
2. Where other conducting materials are not present in the colloidal silver iodide the conductivity follows closely the soluble-iodide content.

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¹ JOUR. A. PH. A., 17 (1928), 453.