THE EFFECT OF CLAY ON RANCID FATS.*

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Many clays, the most common being fuller's earth, are found to have the property of adsorbing organic substances. Since these clays form colloidal solutions with water they are termed "colloidal clays." These are employed to a large extent in the petroleum industry to bleach oils. The process consists of percolating the oil through the clay or agitating the finely powdered clay with the oil. Super-heated steam and reduced pressure are often employed to hasten the action. Lloyd[1] reports that fuller's earth will entirely adsorb many alkaloids; Grettie and Hess[2] found that fuller's earth would adsorb such substances as acetanilid, urea, glucose, etc.

EXPERIMENTAL PROCEDURE.

I. Simple Agitation of Rancid Fat with Clay.—Rancid coconut oil and rancid lard were treated with varying quantities of clay and stirred constantly at 60° C. for three hours, being tested for rancidity every hour. A modification of the Kreis Test was employed to detect rancidity in lard: Equal quantities of lard and concentrated hydrochloric acid were heated in a test-tube covered with filter paper moistened with phloroglucinol solution, the extent of rancidity being determined by the intensity of the pink color. This method was employed since the Kreis Test could not be used unless the lard was first filtered, as the color of the clay obscured the color of the Kreis Test. This test was found to be satisfactory with lard, but coconut oil which was very rancid did not respond to this test or the Kreis Test satisfactorily and it was necessary to determine the extent of rancidity by the odor and taste. The results of this method are shown in Table I.

TABLE I.—SIMPLE AGITATION OF RANCID FAT WITH CLAY.

Fat.	Per cent clay.	Result. 1st hour.	2nd hour.	3rd hour.
Rancid Lard	5	Rancid	Rancid	Rancid
	10	Rancid	Rancid	Rancid
	15	Rancid	Rancid	Rancid
	20	Rancid	Rancid	Rancid
Rancid Coconut Oil	5	Rancid	Slight[1]	Not R.[1]
	10	Slight	Not R.	Not R.
	15	Slight	Not R.	Not R.
	20	Not R.	Not R.	Not R.

[1] Slight—had slight rancid odor and taste; Not R.—free from rancid odor or taste.

II. Treatment of Rancid Fats with Boiling Colloidal Solution of Clay.—Rancid coconut oil and rancid lard were floated upon an equal volume of boiling water con-

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[1] JOUR. A. PH. A., 5 (1916), 381.

[2] *J. Am. Chem. Soc.*, 50 (1928), 668.

taining varying quantities of clay for a period of 45 minutes, being tested as above every fifteen minutes. Water was added from time to time to keep a constant volume. The results of this method are shown in Table II.

TABLE II.—TREATMENT OF RANCID FATS WITH BOILING COLLOIDAL SOLUTION OF CLAY.

Fat.	Per cent clay.	Result. 15 min.	30 min.	45 min.
Rancid Lard	0	Rancid	Rancid	Rancid
	5	Rancid	Rancid	Rancid
	10	Rancid	Rancid	Rancid
	15	Rancid	Rancid	Rancid
	20	Rancid	Rancid	Less R.
Rancid Coconut Oil	0	Rancid	Rancid	Rancid
	5	Less R.	Slight	Not R.
	10	Not R.	Not R.	Not R.
	15	Not R.	Not R.	Not R.
	20	Not R.	Not R.	Not R.

III. Super-Heated Steam and Reduced Pressure with Rancid Fat and Clay.—Rancid coconut oil and rancid lard containing varying quantities of clay were treated with superheated steam at 105° to 110° C. and under a pressure of 600 to 620 mm. for a period of ninety minutes. The steam from the reaction was passed through concentrated hydrochloric acid and then through paper moistened with phloroglucinol solution. The paper became colored pink in the case of lard, indicating the presence of products of rancidity in the steam, but remained white with the coconut oil. The results of this method are shown in Table III.

TABLE III.—SUPER-HEATED STEAM AND REDUCED PRESSURE WITH RANCID FAT AND CLAY.

Fat.	Per cent clay.	Result.
Rancid Lard	0	Rancid odor, strong test[1]
	5	Rancid odor, same test
	10	Rancid odor, same test
	15	Less rancid odor, slightly less intense test
	20	Slight odor, less intense test
Rancid Coconut Oil	0	Rancid odor, gray-brown color
	5	Slight odor, white color
	10	Odorless, white color
	15	Odorless, white color
	20	Odorless, white color

[1] Modified Kreis test for rancidity.

SUMMARY.

Clay was found to entirely renovate rancid coconut oil by three methods: (1) simple agitation, (2) treatment with boiling colloidal solution, and (3) treatment with clay and super-heated steam and reduced pressure. The renovated coconut oil was found in all cases to be similar to the fresh fat, being odorless, tasteless and having a white color while the rancid fat was dark gray in color and had a very disagreeable odor and taste.

The first method was found to be more satisfactory because no water was used (hence no hydrolysis) and the renovated fat was found to remain free from rancidity when exposed to air and light longer than the other renovated samples and longer than a sample of fresh coconut oil.

None of the three methods would entirely renovate lard under the conditions of the experiment although the rancid odor was diminished in all methods with fifteen to twenty per cent of clay.

SYNONYMS—A VALUABLE ASSET TO THE PRACTICAL PHARMACIST.*

BY OTTO RAUBENHEIMER, PH.M.

"Out of his surname they have coined an epithet for a knave,
And out of his Christian name, a synonym for the devil."—Macauley—On Machiavelli.

The writer for many years has filled the position of a national, in fact "International Pharmaceutical Information Bureau," answering at the rate of about one thousand questions annually by phone, mail or telegraph. May I be permitted to state that this service is rendered entirely free of charge, merely with the good intention of sharing my limited knowledge with my brother pharmacists. These inquiries either come from other retail, wholesale and manufacturing druggists or from pharmaceutical journals—both domestic and foreign—therefore the title "International."

As about 30 per cent of these inquiries pertain to synonyms and foreign names, I have, upon due inquiries, reached the following conclusions:

1. The study of synonyms in the college course is neglected by the pharmacist.
2. The post-graduate study of synonyms is still further neglected by the pharmacist.
3. The library of the average pharmacist does not contain books on synonyms. To my great regret, I am compelled to state that instead of at least a five-foot shelf of books, I find a space of about four inches devoted to this library, which consists of a copy of the U. S. P. and N. F. (sometimes even old editions at that) which two books, according to the law of most states, must be kept on hand.

Common and vernacular names of drugs, chemicals and preparations sold over the counter are in daily use by the public and the sale will be lost if the pharmacist is not acquainted with these synonyms, or has no reference books to look up the meaning. Examples of this sort are the multitude of vernacular names of botanical drugs, which names are entirely unknown in another section of the country. As a concrete example let me point out the following occurrence. During Pharmacy Week I exhibited a Medicine Chest over 100 years old, containing among other articles a bottle labeled "Coxe's Hive Syrup." The manager of one of Brooklyn's largest drug stores admired this display, but never heard of this syrup.

On prescriptions the physician will also use Latin synonyms, especially if he wants to keep the patient in ignorance of the remedy which he prescribes, which is sometimes, but not frequently, the case. Examples of that sort are prescriptions calling for *Aquilla Alba* or *Oleum Palmae Christi, Tinct. Macrotys, Sal culinare, Propenylis Hydratis, Ung, Emolliens.* In at least one case the pharmacist needed *Aqua Bullientis* and ordered same from the wholesaler, who promptly sent same in a "Thermos" bottle. Tableau!

The chemical names of the newer or synthetic remedies also cause a great deal of annoyance if not confusion. As the average druggist is not a chemist, he

* Section on Practical Pharmacy and Dispensing, A. PH. A., Portland meeting, 1928.