

HYDROGENATED CASTOR OIL AS AN OINTMENT BASE.*

BY GEORGE W. FIERO.¹

Castor oil differs from most other fixed oils in that it contains a large percentage of ricinoleic glyceride. This substance, because of the hydroxyl group on the fatty acid radical, gives the oil its greater viscosity and miscibility with alcohol. No doubt an ointment with such characteristics would be very valuable for certain applications.

Therefore, hydrogenated castor oil was chosen as a possible ointment base. Hydrogenated oils are superior to lard as an ointment base because they are not as susceptible to rancidity (1). The oils may be obtained with almost any desired melting point from that of the original oil to that of completely hydrogenated oil by controlling the extent of hydrogenation.

HYDROGENATED CASTOR OIL.

This was supplied through the courtesy of the Research Laboratory of Spencer Kellogg & Sons. Two types of oil were used, a "soft" oil to replace lard or petrolatum and a "hard" oil to replace wax or other stiffening agents.

Soft Hydrogenated Castor Oil.—Melting point 40° C., Iodine Value 70.8, miscible with alcohol at 50° C. This oil differs from hydrogenated cottonseed oil of commerce in physical appearance. It is more viscous and does not possess the white appearance of ordinary hydrogenated oil or lard. Its appearance more nearly resembles the translucency of white petrolatum. The cut surface appears somewhat granular, but has a soft, unctuous consistency. The oil has a faint odor and taste of castor oil.

Hard Hydrogenated Castor Oil.—Melting point 82° C., Iodine Value 16.6. This is a hard, white, somewhat translucent mass with a crystalline fracture and a pearly lustre, not unlike spermaceti. It is entirely free from odor or taste and may readily be reduced to a powder.

ABSORPTION OF WATER.

Samples (25 Gm.) of soft and hard hydrogenated castor oil, lard and white petrolatum were added to an equal volume of water and allowed to stand, with frequent agitation, for 24 hours at a temperature above their melting points. They were then allowed to stand at room temperature for 48 hours and at 5° C. for 6 days. The excess water was carefully removed and the moisture present in the fat was determined by the Dean method (2). The amount of water present in the bases was found to be:

Soft Hydrogenated Castor Oil.....	5.0%
Hard Hydrogenated Castor Oil.....	8.5%
White Petrolatum.....	1.7%
Lard.....	3.7%

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¹ University of Buffalo, School of Pharmacy.

USE IN OINTMENTS.

Very satisfactory products were obtained when the U. S. P. ointments were prepared substituting soft hydrogenated castor oil for petrolatum or wool fat and hard hydrogenated castor oil for wax, etc. A few of the products were quite superior to the official ointments.

Unguentum Belladonnae.—Since hydrogenated castor oil is miscible with alcohol, it is a valuable base for use when the medicament is in alcoholic solution, such as ointments containing extracts. Thus Belladonna Ointment, prepared as follows, was very satisfactory:

Pilular Extract of Belladonna.....	10 Gm.
Diluted Alcohol.....	5 cc.
Hard Hydrogenated Castor Oil.....	10 Gm.
Soft Hydrogenated Castor Oil.....	75 Gm.

Unguentum Iodi.—Hydrogenated castor oil appears to absorb glycerin better than lard or petrolatum, probably due to the common hydroxyl radicals. Thus Iodine Ointment, prepared as follows, appeared to be of better consistency than the official product:

Iodine.....	4 Gm.
Potassium Iodide.....	4 Gm.
Glycerin.....	12 cc.
Hard Hydrogenated Castor Oil.....	10 Gm.
Soft Hydrogenated Castor Oil.....	70 Gm.

Oculenta (3).—Ointments for the eye are prepared, when the substance to be used is water-soluble, by incorporating the aqueous solution with a base consisting of 90% petrolatum and 10% wool fat previously filtered and sterilized. Since hydrogenated castor oil more readily absorbs water, it proved more satisfactory for such ointments.

REFERENCES.

- (1) Fiero, G. W., *Jour. A. Ph. A.*, 20, 254 (1931).
- (2) Dean, E. W., *Ind. Eng. Chem.*, 12, 486 (1920).
- (3) *British Pharmacopœia* (1932), 296.

NEW PRACTICALITIES IN PHARMACY.*

BY O. U. SISSON.

“Education begins at the cradle and ends at the grave.” How often is one reminded of this? Having had all the conceit taken out of me in 1895 by a man with little pharmaceutical education but a thoroughly practical mind, I have long followed the old axiom “count that day lost in which nothing has been gained.” All too frequently pharmacists, upon leaving their college halls, feel that their professional education is completed; there is nothing more for them to learn. Their education progresses no further from a professional standpoint. Mental atrophy sets in.

The only way in which this tendency can be overcome is by effort on the part of

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