

SCIENTIFIC SECTION

PHYSIOLOGICAL POTENCY OF IMPORTED ERGOT OF RYE.

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The chief source of ergot of rye offered for entry at the port of New York during the last three years is Spain, although smaller quantities have been offered from Portugal, Russia and Poland. About 60,000 pounds are imported annually from Vigo, the chief Spanish shipping center. In addition to the shipments coming directly from their countries of origin, many are consulated from foreign ports, as Antwerp, Hamburg or London.

Samples from 69 shipments, representing 1100 bags of ergot of rye, have been assayed by the cockscomb method adopted as the official method of assay in U. S. P. X. (Described under "Ergota," page 133, Pharmacopœia of the United States, Tenth Decennial Revision, 1925.) Forty-two, or 60 per cent, were found to be as strong as or stronger than, the U. S. P. X Standard Fluidextract of Ergot prepared and distributed by the Bureau of Chemistry.

Five samples were reported as "wormy" or "containing mites." However, fluidextracts made from three of these were found to be more potent than the Standard Fluidextract. The other two samples had the same potency.

Ergots from Poland, with one exception, have come from Warsaw: three of the five samples tested were sub-standard. Six Portuguese samples from Oporto and Lisbon met the physiological requirement. Only two of the nine samples of known Russian origin were as strong as the U. S. P. Standard. On the other hand, 26 of the 27 samples of Spanish origin were equal to or stronger than the U. S. P. requirement.

Twenty-two consignments consulated from Antwerp, Hamburg, London and Rotterdam, for which no information regarding country of origin was avail-

Country of origin.	Consulate.	Physiological potency.			Sub-total.	Total.
		More than 100%.	100%.	Less than 100%.		
Poland	Antwerp	1	..	..	1	..
	Warsaw	..	1	3	4	5
Portugal	Lisbon	1	3	..	4	..
	Oporto	2	..	..	2	6
Russia	Hamburg	..	2	4	6	..
	Moscow	..	..	3	3	9
Spain	Antwerp	4	1	..	5	..
	Barcelona	1	1	1	3	..
	Hamburg	7	2	..	9	..
	London	2	..	..	2	..
	Vigo	4	4	..	8	27
Unknown	Antwerp	..	1	..	1	..
	Hamburg	..	3	11	14	..
	London	..	..	5	5	..
	Rotterdam	1	1	..	2	22
		—	—	—	—	—
		23	19	27	69	69

able, were tested. Of these 6 were equal to or more active than the standard, and 16 were sub-standard. Perhaps some indication of country of origin may be obtained by comparison with the potencies of authenticated samples of ergot during the same season.

The Pharmacopœia states that ergot "deteriorates with age, and should not be kept longer than one year." It has been reported that climate, time of harvesting and the conditions of storage of crude ergot directly affect the quality. It may be that climatic conditions have been less favorable for Russian ergot than for Spanish. It is possible also that the samples from Russia are more than one year old.

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THE ASSAY OF ERGOT BY THE COCKSCOMB METHOD.

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The method of assaying ergot, officially adopted in U. S. P. X is as follows:

"Ergot, in the form of the fluidextract, administered by intramuscular injection to single-comb, white Leghorn cocks, in doses not exceeding 0.5 cc. for each kilogram of body weight of cock, produces a darkening of the comb, corresponding in intensity to that caused by the same dose of a standard fluidextract of ergot, * * * * *"

"Assay—Use single-comb, white Leghorn cocks, which are less than eighteen months of age, and weigh approximately 2 kilograms. Injections are made deeply into the breast muscles, and the effects are observed within one hour to one and a half hours after the administration of the drug. The same cock must not be used for testing purposes at shorter intervals than two weeks." (U. S. P. X, Ergota, page 133.)

The fluidextract of ergot is the form most commonly used in medicine. The solid extract, the powdered extract and various ergot pastes are unsuitable for assay as such, and are accordingly converted into fluidextracts for assay purposes. One part by weight of the paste or powder is dissolved in 3 parts of 50% ethyl alcohol to make a 1:4 solution.

A few experiments showed the same reaction of the comb whether the fluidextract was injected into the breast muscles or into the leg muscles. It is more practical to use the breast muscles, and the occasional development of local abscesses there is less serious than on the leg.

Various types of chickens were tested for possible substitution for the required white Leghorn cocks. Four rose double-comb white Leghorn cocks of suitable age, and weighing from 1900 Gm. to 2200 Gm. were tested at doses of 0.5 cc. and 1.0 cc. of U. S. P. X Standard per Kg. body weight. No effect was produced on either comb or wattles.

A series of hens was tested against a series of cocks of comparable weights; 90% of the cocks gave a satisfactory reaction, but the hens exhibited only slight blanching, or no effect whatever. Table I.

Breeds of cocks other than white Leghorns were tested also, with generally unfavorable results: