

A Method of Testing Guinea Pigs for Hypersensitiveness to *Rhus toxicodendron*.*

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Sensitization of guinea pigs to *Rhus toxicodendron* was reported by Rackemann and Simon,¹ and has been repeated by a number of workers.² For testing it has been customary to apply an acetone solution of the substance to the skin and to note differences in speed of appearance and intensity of reactions in treated animals and controls. While treated animals react more strongly to these extracts than untreated, the latter also give reactions which develop within 48 hours and make it difficult to interpret results. Recently, hypersensitiveness in guinea pigs was again studied by Ginsberg, Becker, and Becker³ who, attempting to overcome this difficulty, applied several dilutions of acetone extract in the tests. Straus,⁴ on the other hand, deeming the guinea pig unsatisfactory, used the *Rhesus* monkey which shows less irritation of normal skin; this finding has been utilized by Straus and Coca⁵ in further experiments.

It seemed desirable to obtain a method of testing guinea pigs that would bring out more clearly differences between sensitized animals and controls. An experiment typical of results obtained is given below.

Six guinea pigs were sensitized, after clipping the hair with an electric clipper, by applying 5 drops of a 2% acetone solution of poison-ivy extract† on the back, spread with a glass rod. Ten days later the animals were tested on an untreated, clipped site (Table I)

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¹ Rackemann, F. M., and Simon, F. A., *Science*, 1934, **79**, 344.

² Simon, F. A., Simon, M. G., Rackemann, F. M., and Dienes, L., *J. Immunol.*, 1934, **27**, 113; Kobayashi, Y., *Jap. J. Dermat. and Urology*, 1935, **37**, 92; Simon, F. A., *J. Immunol.*, 1936, **30**, 275; Landsteiner, K., and Jacobs, J., *J. Exp. Med.*, 1936, **64**, 249; Kile, R. L., and Pepple, A. W., *J. Investigative Dermatol.*, 1938, **1**, 59.

³ Ginsberg, J. E., Becker, F. T., and Becker, S. W., *Arch. Derm. and Syph.*, 1937, **36**, 1165.

⁴ Straus, H. W., *J. Immunol.*, 1937, **32**, 241.

⁵ Straus, H. W., and Coca, A. F., *J. Immunol.*, 1937, **33**, 215

† Courtesy of Dr. Arthur Coca, Lederle Laboratories.

by applying gently with a glass rod 2 drops of a 2% solution of poison-ivy extract in acetone. This was washed off in 5 hours with an aqueous solution of potassium permanganate (2.5%) containing 1 cc of N/1 sodium hydroxide per 100 cc. The site was then washed with water and dried with cotton, and readings were made the next day not less than one hour after application of a depilatory. A preliminary test before the sensitizing treatment was negative in all animals, and an incidental test 2 days after the sensitizing treatment showed that none of the animals had acquired hypersensitiveness at this stage, as would be expected.

TABLE I.
Sensitization to Acetone Extracts of *Rhus toxicodendron*.

Treatment Oct. 6	Guinea pig No.	Tested with 2 drops 2% acetone extr. Oct. 16; read the following day
5 drops 2% acetone extr.	1	pink, elevated
	2	faintly pink
	3	pale " , slightly elevated
	4	faintly " , " "
	5	pale " , elevated
	6	faintly " , slightly elevated
None	7	negative
	8	" "
	9	" "

The table shows that guinea pigs sensitized and tested as described have definitely positive cutaneous reactions, whereas normal untreated animals tested simultaneously are negative. Controls, when this method is used, will not show a reaction at any time. If the toxic principle is not destroyed, irritation almost invariably develops within 48 hours after application of the 2% extract.

With this technic there appears to be no difficulty in carrying out sensitization experiments with *Rhus toxicodendron* in guinea pigs. The strength of the solutions and the time interval used may be varied considerably.

Preliminary experiments suggest that the principle utilized—namely, the application of a strong solution of the test substance for a short time, at the end of which the substance is destroyed or washed off, might serve to improve other tests for hypersensitiveness.