Missouri Section.

St. Louis University School of Medicine, May 14, 1930.

5039

A Solanum From Siam in the Treatment of Diabetes Mellitus.

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In *Science* for December 23, 1927, Dr. Hugh M. Smith printed a letter relating the existence in Siam of solanaceous plants whose fruits appeared to have a marked effect on the sugar content of the urine of diabetes. The plant supposed to have been used was sent by Dr. A. Kerr from Siam to Kew Gardens, London, from which, in turn, it was sent to Prof. Craib of Aberdeen, Scotland, who described it as a new species, *Solanum sanitwongsei,* after the late Japanese physician, Dr. Yai S. Sanitwongsei, who first used the solanaceous fruit in treating diabetes. After strenuous efforts Dr. George T. Moore, Director of the Missouri Botanical Gardens, succeeded in getting seeds from the original plant described by Dr. Craib. Dr. Moore very kindly supplied us with ripe fruit grown at the Missouri Botanical Garden, and thus presented the opportunity to study its effect on diabetics.

The fruits resemble small tomatoes, averaging about one centimeter in diameter and become yellow or red when ripe. In Siam, patients were given 3 to 10 with each meal. When they were administered with the food of diabetics, the glycosuria was reported to clear immediately and remain absent for about 20 hours, but return unless the fruits were again taken. The diets, containing large amounts of rice, apparently were not restricted.

In this investigation, patients were given 5 to 7 ripe fruits to eat with each meal. Table I shows they had no appreciable influence on the blood sugar following breakfast in mild diabetics. There was no effect on the glycosuria. The severe diabetics represented in

TABLE I.

A study of the effect of fresh, ripe fruits of *Solanum sanitwongsei* on the blood sugar, following a standard breakfast, of mild diabetics who were on a constant dietary regime but who had not received insulin. Columns (1) record changes after the breakfast without fruits; columns (2) record changes the next day when 7 fruits were eaten with breakfast; columns (3) record changes after 7 fruits had been eaten with each meal for 2 days and with the test breakfast the third morning. Figures are mg. %.

	Case 1			Case 2		
	(1)	(2)	(3)	(1)	(2)	(3)
Fasting	205	242	259	235	228	260
1 hr. after breakfast	246	270	263	251	278	
2 hrs. after breakfast	268	264	248	231	250	296
3 hrs. after breakfast	257	250	251	220	230	277

TABLE II.

A study of the influence of *Solanum sanitwongsei* fruits on the course of severe diabetics partially controlled with insulin. Five to 7 fresh ripe fruits were eaten with each meal. The diets remained constant. There was no noteworthy effect on glycosuria.

	Case 3			Case 4			Case 5		
	Insulin before breakfast	Blood sugar 3 hours after breakfast	Total insulin for the day	Insulin before breakfast	Blood sugar 3 hours after breakfast	Total insulin for the day	Insulin before breakfast	Blood sugar 3 hours after breakfast	Total insulin for the day
	Units	Mg. %	Units	Units	Mg. %	Units	Units	Mg. %	Units
Before starting fruits	30	231	75	30	130	50	35	120	65
2nd day	30	188	85	30	137	50	35	118	65
3rd day	40	118	80	30	88	50	35	134	65
4th day	40		80	30		60	35	130	65
5th day	40	182	90	30	76	50	35	94	65
6th day	40		80	25		50	30		60
7th day	40	93	80	25	130	50	30		60
8th day							30	164	50
9th day							30		70
10th day							35	182	65

Table II had been in the hospital for less than a week and steady improvement would have been expected with the insulin and dietary regime alone. There was little evidence that the solanum fruits had any influence on their progress.

The effect of relatively large amounts of these berries on the blood sugar tolerance curve of fasting rabbits was also studied. The curves became somewhat higher, probably due to the carbohydrate contained in the fruits.

These experiences did not indicate any striking influence of this particular Solanum on the diabetic state. Fruit from other species of Solanum from Siam will be investigated.

5040

Effect of Sodium Salicylate on Intradermal Reactions of Rabbits.

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Sodium salicylate is commonly used in the treatment of infections, especially those presumed to be due to invasion by streptococcus. The old idea that acute rheumatic fever is due to infection by streptococcus, and the recently developed conception that the disease is involved in a process of allergy to streptococcus, stimulate a study of sodium salicylate in relation to allergy to streptococcus.

In this study rabbits were inoculated with cultures of a strain of *Streptococcus hemolyticus* of low virulence. The injections were made into one of the knee joints, 0.1 cc. of broth culture being used. For intradermal tests, 0.1 cc. of filtrate from a 5-day culture in Harley's medium was used. Areas near the spine were used for inoculation. All animals were tested for native reactivity to the filtrates before being employed in the experiments. Fresh animals giving positive dermal reactions were discarded. In the use of sodium salicylate, 0.2 gm. per kilo in 5% aqueous solution were given intravenously. The injections were made slowly. Injections were made daily.

Preliminary studies showed that following the intra-articular injection of streptococci, purulent arthritis invariably resulted and persisted until the death of the animal. Blood cultures were rarely positive during the life of the animal unless an intercurrent disease such as "snuffles" intervened. When this occurred, hemolytic streptococci were found in the blood at autopsy. Ten days after arthritis was established, positive intradermal reactions were always present.

The conditions of the experiment were severe due to the nature of the infection and the death rate was high in all series. This did not seem to be considerably influenced by the use of sodium salicylate.

In the first series of animals 15 controls gave strongly positive intradermal reactions 10 days after the production of arthritis, and 8 animals, given sodium salicylate 24 hours before the production of