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## Inulin and its Suitability for Intravenous Administration in Man



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### Excerpt

After having administered dahlia inulin (lot 661-non-toxic) intravenously in large doses to dogs, and to man in 42 instances in doses ranging from 30 to 150 gm., without reaction, an unexplained transient reaction consisting of chills, fever, lumbar pain, nausea, vasomotor depression, herpes and anuria was encountered. The same reaction was encountered simultaneously in another laboratory where an independent sample of inulin was being used. The material that produced the reaction in our laboratory (lot 661-toxic) was a new shipment which had been purified separately by the manufacturer from the same batch of crude inulin as had supplied lot "661-non-toxic." At our request the manufacturer supplied a fresh, highly purified sample (lot 681) prepared from a new batch of dahlia roots, which proved to be, if anything, more toxic than "661-toxic", 1.0 gm. sufficing to produce either chill, fever, headache, nausea or lumbar pain. This reactive inulin appeared to be relatively innocuous for dogs, rabbits and guinea pigs, even when administered in very large doses. Boiling for 30 minutes in distilled water did not appreciably diminish the toxicity; partial hydrolysis with dilute acetic acid (sufficient to increase the reducing power from 0.9 to 13% by weight) diminished the toxicity somewhat, and complete hydrolysis with N/10 H<sub>2</sub>SO<sub>4</sub> decreased the toxicity considerably. However, a fairly typical reaction was obtained after the administration of 20 gm. that had been hydrolyzed in the latter manner. Spectroscopic examination of the ash of both preparations revealed traces of numerous metals, but showed no Pb or Si, and no significant differences between the toxic and nontoxic preparations.

Through the courtesy of Dr. Eaton M. Mackay and of the Bureau of Chemistry and Soils of the U. S. Department of Agriculture, we subsequently obtained a quantity of crude chicory inulin. This material was purified in the Department of Physiology, and with the exception noted below has proved to be innocuous to animals and to man. This material has, at the time of writing, been administered intravenously to man 28 times in doses of 30 to 40 gm. without reaction, and it produced no reaction in doses up to 80 gm.

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