

Report on the Blood Pressure Raising and Irritant Properties of  
Smoke from Control Cigarettes and Chloresium Treated Cigarettes

At the request of Mr. H. R. Hanmer, Director of the Research Laboratory of The American Tobacco Company, comparative studies have been made by us on the blood pressure raising and irritating properties of smoke from control cigarettes and Chloresium treated cigarettes. Both the control and treated cigarettes were prepared by The American Tobacco Company.

For studying the comparative effects on blood pressure, smoke solutions were used, the solutions being prepared by a member of the research staff of The American Tobacco Company according to the technic of Bradford, Harlan and Hanmer (Ind. & Eng. Chem. 25: 856, 1933), using saline as the collecting medium. The solutions were marked in code and delivered to my laboratory at the Medical College of Virginia. The blood pressure studies were made on dogs anesthetized with Dial, the pressure being recorded from a carotid artery and the solutions being injected into a femoral vein.

For the studies on irritation (edema production) standard weight cigarettes from the control and Chloresium treated lots were tested on the rabbit eye, using procedure B of the technic described by Finnegan et al (J. Pharmacol. & Exp. Therap. 89: 115, 1947) in which whole smoke is employed. These cigarettes were supplied us coded.

The key to all the coded smoke solutions and cigarettes was not made known to us until all tests herein reported had been completed.

Blood Pressure Experiments:

Experiment #1 -

February 16, 1948 - This experiment consisted of a comparison of a smoke solution from control cigarettes and a smoke solution from cigarettes

containing 1 part Chloresium per 100,000 parts tobacco. Alternate injections of equal volumes of these solutions were made and no difference was noted in their blood pressure raising properties.

Experiment #2 -

February 17, 1948 - This experiment consisted of a comparison of three smoke solutions as follows:

- a. Smoke solution from control cigarettes
- b. Smoke solution from cigarettes containing 1 part Chloresium per 100,000 parts tobacco
- c. A portion of smoke solution "a" to which 0.004 mg. per ml. of active Chloresium was added. (This amounts to approximately 1 part Chloresium per 100,000 parts tobacco.)

Injections of equal volume of these three solutions produced equal blood pressure rises.

Experiment #3 -

February 19, 1948 - This experiment consisted of a comparison of a smoke solution from control cigarettes and a smoke solution from cigarettes containing 1 part Chloresium per 1000 parts tobacco. Alternate injections of equal volumes of these solutions were made and no difference in blood pressure raising potencies was observed.

Experiment #4 -

February 20, 1948 - This experiment consisted of a comparison of a saline solution containing 0.92 mg. nicotine per ml. and a similar solution containing 0.4 mg. active Chloresium per ml. (1 part per 2500) in addition to the 0.92 mg. nicotine per ml.

Before either of these two solutions were injected into the dog, 0.7 ml. of Chloresium solution (1 ml. = 5 mg. Chloresium) was injected to see what effect it might have on the blood pressure. No effect was observed.

It was noted that the addition of Chloresium did not alter the pressor potency of the nicotine solution when added as 1 part per 2500. Similar results were obtained with a dilution of 1 part per 25,000 parts of solution.

Experiment #5 -

March 1, 1948 - This experiment consisted of a comparison of a smoke solution made from control cigarettes and a smoke solution from cigarettes into which a Chloresium solution had been injected in amount equal to 1 part Chloresium per 100,000 parts tobacco. Alternate injections of equal volumes of these solutions were made and no difference in blood pressure response noted.

Irritation Experiments:


February 25-27, 1948 - Sixteen comparisons were made between control cigarettes and cigarettes treated with 1 part Chloresium per 100,000. No significant difference in edema producing properties was detected between the two lots of cigarettes.

Conclusions:

These experiments show that:

- I. Addition of Chloresium to cigarettes in amounts of 1 part per 1000 parts and 1 part per 100,000 parts tobacco does not alter the blood pressure raising potency of smoke solutions prepared from them.
- II. Addition of Chloresium to pure nicotine solutions in amount equal to 1 part per 2500 and 1 part per 25,000 is without effect on the blood pressure activity of nicotine.
- III. Addition of Chloresium to cigarettes in amount of 1 part per 100,000 parts tobacco does not alter their irritating properties as measured by edema production.

Signed:

  
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March 5, 1948