

### Effect of Butyl Alcohol in *Datura innoxia* Mill

Seeds of *Datura innoxia* Mill. are reported to contain 0.1–0.9% tropane alkaloids<sup>1</sup> (mainly hyoscyamine and hyoscyne). The latter accounts for 40–50% of the total alkaloids. These seeds from wild sources at Jammu contain 0.12–0.22% total alkaloids. SINGH and KAUL<sup>2</sup>, by treating these seeds with various concentrations of ethyl alcohol, induced tetraploidy and increase in alkaloid content of seeds. The present experiment was conducted to see the effect of butyl alcohol on these seeds.

**Material and method.** Mature seeds with 0.18% total alkaloids were collected from a single clone. Seeds in 100 g lots were separately soaked in varying concentrations of normal butyl alcohol for 1 h at room temperature. This treatment, in one set, was proceeded by exposure to 45°C for 30 min, while, in the other set it was followed by washing with tap water and exposure to a similar temperature shock. Seeds soaked in tap water for 1 h at room temperature served as control. Seeds of all the sets were separately sown in the field soon after treatment; they germinated in 20–25 days with 80–85% germination. 200 plants of each set were raised under identical conditions. 10 plants from each treatment were marked at random, their capsules collected separately at approximately the same stage of maturity, seeds oven-dried at

45°C and analyzed for alkaloids as per I.P.C. method<sup>3</sup>. Each sample was analyzed twice and average value taken. In case of doubts, analysis was repeated. Hyoscyne content was determined approximately by thin-layer chromatography. Seeds treated with 12% *n*-butyl alcohol could not be given conditions identical to other sets and were ignored. The experiments were repeated the following year (1968) on a changed site which happened to be very poor in humus and nitrogen content.

**Results and discussion.** The results are given in the Table. The data show that (1) *n*-butyl alcohol treatment appears to enhance production of seeds and their alkaloid content in the next generation, (2) temperature shock after the alcoholic treatment has given better results, and (3) treating seeds with 9% *n*-butyl alcohol followed by temperature shock has given best results. Certain pronounced morphological changes were also noticed in plants thus raised. The lower alkaloid content in experiments in the year 1968 may be ascribed to the nitrogen-deficient soil on which plants were raised, since nitrogen affects the formation of alkaloids in *D. innoxia*<sup>4</sup>. The above changes are probably due to certain modifications introduced in chromosomes and the same are under investigation.

Treatment	Year 1967			Year 1968		
	Average wt. of seeds per plant (g)	Total alkaloid content (%)	Approx. hyoscyne content (%)	Average wt. of seeds per plant (g)	Total alkaloid content (%)	Approx. hyoscyne content (%)
Control	250	0.18	45	250	0.17	45
6% <i>n</i> -butyl alcohol followed by temperature shock	350	0.36	55	350	0.35	55
Temperature shock followed by 6% <i>n</i> -butyl alcohol treatment	300	0.29	55	300	0.27	55
9% <i>n</i> -butyl alcohol followed by temperature shock	350	0.56	70	350	0.42	70
Temperature shock followed by 9% <i>n</i> -butyl alcohol treatment	300	0.32	60	300	0.34	60
12% <i>n</i> -butyl alcohol followed by temperature shock	—	—	—	350	0.40	60
Temperature shock followed by 12% <i>n</i> -butyl alcohol treatment	—	—	—	300	0.27	50

<sup>1</sup> I. I. GERASIMENKO, N. I. LIBIZOV, B. S. NIKOLSKAYA and F. A. SATSIPEROV, *Durman indiasckii* (Medgiz, Moscow 1953), p. 28.

<sup>2</sup> P. SINGH and B. L. KAUL, *Ind. J. exp. Biol.* 5, 128 (1967).

<sup>3</sup> B. MUKERJI, *The Indian Pharmaceutical Codex* (C.S.I.R., New Delhi, 1, 90, 1953).

<sup>4</sup> A. S. SINHA and K. C. VERMA, *Ind. J. Pharm.* 38, 3 (1966).

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**Zusammenfassung.** Die Behandlung der Samen von *Datura innoxia* Mill. mit *n*-Butylalkohol und Temperaturschock ergibt in der nächsten Generation Pflanzen, deren Samen einen höheren Alkaloidgehalt aufweisen. Das Hauptalkaloid ist Scopolamin (Hyoscin) mit einem Anteil von 50–70% am Gesamtalkaloidgehalt.

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### La multiplication in vitro des streptocoques du groupe A. Le phénomène d'éclipse

Certaines souches de streptocoques du groupe A ne se multiplient, en milieu artificiel, que si le nombre de bactéries ensemencées est suffisamment important. Nous étudions dans ce travail la multiplication in vitro d'une souche très virulente pour la souris et ses variations en fonction de l'importance de l'ensemencement.

**Matériel et méthodes.** La souche 18 t 24 BM (groupe A, type 24) est extrêmement virulente puisqu'une seule chaînette, injectée par voie intra-péritonéale, suffit à tuer la souris. Pour conserver cette souche, dans cet état de virulence, une culture est faite chaque semaine à partir du sang du cœur d'une souris infectée par voie intra-