TECHNICAL NOTES

Achary, P.M.R. and P.K.Dutta. University of Calcutta, India. Apparatus for mutagenizing Drosophila.

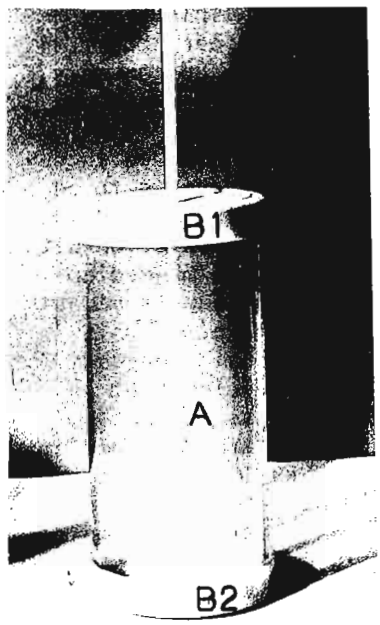

Fig. A Drosophila mutagenizing apparatus.

Methods for mutagenization of Drosophila by feeding have been proposed by Lewis & Bacher (1968) and Sharma (1974). We have developed a method in our laboratory which proved to be suitable for mutagenization of Drosophila by feeding.

The apparatus consists of a plexiglass barrel (A) of height 12 cm, diameter 9 cm and two plastic petridishes of diameter 9.2 cm. The plexiglass barrel is fitted on one side with a specially designed etherizer made of a plastic petridish (B1), which consists of small pores on the upper surface and a circular uniform cotton pad pasted to the inner surface. In addition, a hole (of size enough for the insertion of a pastuer pipette) is bored, through which a pastuer pipette is introduced. The other end of the plexiglass barrel is fitted with another plastic petridish (B2) containing filter paper (of diameter 11 cm) or a glass filter paper, as being chemically inert (Lee 1976), saturated with the mutagen solution of desired strength. The filter paper can be kept moist by passing the mutagen solution through the pastuer pipette. Flies to be mutagenized are etherized and placed on the filter paper. After one hour of complete recovery from etherization (Lewis & Bacher 1968) the filter paper is saturated with the mutagen solution of desired strength. Mutagenized flies can be etherized directly in the chamber after the desired time of treatment by dropping ether through the small pores onto the cotton pad of the etherizer, care is taken and seen that the etherizer side of the apparatus is placed downward after removal of the pastuer pipette, otherwise anaesthesized flies will get stuck to the filter paper containing mutagen solution.

In employing this method of feeding we have seen that the number of surviving flies is much high, for the fact that very less number of flies get stuck to the filter paper.

Advantages of the apparatus: (1) a large number of flies can be mutagenized at one time, (2) the apparatus can be easily neutralized after the treatment schedule, (3) the filter paper can be wetted with the mutagen solution through the pastuer pipette from time to time to prevent drying off, (4) the apparatus can also be used for time-gap chemical mutagenesis, e.g., flies can be treated with a certain mutagen for a particular time and then the mutagen treatment can be removed by changing the petridish, containing the treatment medium. After the desired time-gap, same or another mutagen treatment can be resumed by changing the petridish, and (5) unlike glass apparatus it is unbreakable.

References: Lewis,E.B. & F.Bacher 1968, DIS 43:193; Sharma,R.P. 1974, DIS 51:143; Lee, W.R. 1976 (see "The Genetics and Biology of Drosophila", Ashburner & Novitski (eds), V1c, Academic Press, New York).