

An improved dissecting technique of genitalia of Lepidoptera.

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Comparative studies of male and female genitalia of Lepidoptera belong among essential and routine tasks of taxonomist's research programme. This requires usually dissections of large numbers of individuals of both sexes. Although this task rarely presents considerable technical difficulties, it is always very time consuming: it requires coordination of the heating of the abdomen, the actual dissection, and subsequent mounting. Each of these three tasks needs control and concentration, usually for relatively long periods time. However, a precise control of the first of the three tasks involved — the heating of the abdomen — enables the reasearch scientist to work continuously and pay his full attention to the 'more important' tasks of dissecting and mounting. Unfortunately the heating of the abdomen in a test tube containing 10 % to 15 % solution of KOH is usually cmplicated by 'bubling and bumping' of the sololution owing to variations in temperature of the heating water bath, steaming and regular replenishing of the amount of water. The even more primitive technique of a long term application of cool KOH cuts out the heating problems, but the abdomens are usually never 'ready' when needed and the scientist cannot plan his short time programme.

The small, simple and inexpensive instrument described below — and given by the junior author name BBB — enables the heating to be conducted under controled conditions and is likely to find also other forms of application.

This devise — designed to provide rapid and controled heating of a chemical test tube — relies entirely on semi-conductor techniques and, if required, provides for a very precise control of the temperature selected; the range of temperature control would normally be form ambient to 100° C, or slightly above.

The prototype was constructed, to enable the junior author, to carry out genitalic dessections of Lepidoptera. The specifications was that a test tube heater was required, that would heat approx. 20ml KOH. in the minimum of time, and be free, as far as possible, from 'bumping'.

This specification was readily catered for, and in practice, 20 ml of KOH reaches 100° C in approx 5 mins, at which point the supply of heat to the tube may be reduced, and allow the contents to simmer gently, for an indefinite period.

The design arranges that the test tube is placed in a close fitting holder, with the holder being in intimate contact with the semi-conductor devise. Current is fed into the semi-conductor at a controlled rate, and the heat energy produced thereby, is passed on to test tube. The prototype is in the basic form but an additiional precision of temperature control may be added if desired.

The advantage of this device is reflected in the ease of handling and control, the relatively gentle application of heat energy to the test tube contents and last but by no means least the modest cost of construction.

The tests carried out by the junior author have produced verry satisfactory results. The 'BBB' enables the taxonomist to heat the abdomen – the prototype can heat two test tubes at the same time – in pre-determined mode and, therefore, trouble free. The scientist can carry out undistracted the dissections and mounting while the next abdomen is being heated. This represents a considerable increase of efficiency combined with time savings in the long term and on the whole, ultimately, also better quality of the resulting microscope slides; the more difficult the dissection, the better the final improvement.

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