



THE BASIC EQUIPMENT FOR REARING BUMBLE BEES (Hymenoptera, *Bombus* Latr.) IN LABORATORY

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For the limited number of produced colonies started in laboratory special equipment is necessary, which, however need to be neither expensive nor complicated.

1: A thermostat (for starting colonies) and/or a dark room (for developing colonies) capable to keep constant level of temperature and air humidity. 29 – 30°C and 70% of humidity enable queens to lay eggs and incubate her first progeny. Stronger colonies can be inspected under the red illumination and a bit lower temperature (27 - 25°C).



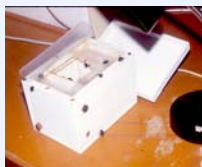
2: Small containers for placing queens to start egg laying. Simple "kitchen" plastic containers with sets of openings for ventilation, bottom covered with the material absorbing moisture (e.g. a card board). The larger is the species of bee or the number of individuals, the larger must be the container.



3: Feeders to supply sugar solution and pollen. Plastic tubes or bottles with tight cap and one tiny opening only, enabling the access to the food. The same caps are suitable also to supplying pollen pellets.



4: Proper food. The 60 % sucrose solution stabilized against microbial processes by Na-benzoate and/or Na-sorbate, with an addition of fructose to prevent granulation. Pollen pellets collected by honeybees, fresh, stored deep-frozen or conserved by natural anaerobic fermentation. As a supplement dry sold pollen product moistened before supplying can be used.



5: Hives for continuous laboratory development of colonies or their situation in the open air. The inner volume should be 10-15 liters (for small and large bumble bee species, respectively). At least two screened ventilation openings are desirable and a flying entrance. Outdoor colonies must be given a soft insulating material inside. Inner plastic cover keeps apart workers by colony inspection, the outer telescopic cover prevents hives from rain.



6: Stands for putting hives outdoors. The metallic rod pointed at one end. On the upper end there is a cross to hold a hive and a cup for preparation preventing ants.



7: Enclosed space for mating young queens. A cage made of mesh or simply an aquarium covered with a sheet of glass with an access of fresh air. *B. terrestris* pairs copulate even in a 4 liter cucumber glass.



8: Containers for overwintering mated young queens. The same as in paragraphs 2 and 3, in this case used to another purpose.



9: Device to store hibernating queens. 4 °C, as high as possible air humidity and quietness are the necessary conditions for successful long-term storing of mated queens.

10: Eventually, an arrangement for queens' narcosis. As a source of CO₂ simply a siphon or cream bottle can serve.



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