EC 2

ON DEVELOPMENT OF SUBPHARYNGEAL GLAND OF HONEY BEES(Apis mellifera ligustica).

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When honey bees live freely in a mother colony, in general, their subpharyngeal glands most develop at about 8 days of age. In order to solve the riddle of the glandular development, we permitted bees to be in mother colony only a day on which they emerged, from emergence for 2 days, 3 days and 4 days respectively, and removed them with pollen and honey to an incubator of 32°C to isolatesingle from the colony. The bees isolated were dissected at 8 days of age, and diameters of acini of subpharyngeal gland were measured in 0.8% salt solution. Glandular development was expressed with the mean size of spheres calculated from diameters of 30 acini selected randomly in individual bees. The result showed that the acinus developed progressively with stay of bees in the colony. When a newly-emerged bee was paired with a bee of 6 days of adult life and lived together in a small box having foods from then for 8 days, acinus of the former became the biggest size among pairing with bees ranging from 4 days of age at intervals of 1 or 2 days to 13 days of age. From the result, it was inferred that there are some combinations of sender and receiver bees of day of ages most fitted to communication of information for developing subpharyngeal gland.

EC 3

POPULATION DYNAMICS IN ASEXUAL REPRODUCTION OF THE POLYSTYELID ASCIDIAN, POLYANDROCARPA MISAKIENSIS.

I. BIRTH AND DEATH

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The population dynamics in budding was studied in blastozooids of the polystyelid ascidian, Polyandrocarpa misakiensis. The population successively derived from one blastozooid on a glass plate (8 X 11cm) was recorded once a week by photography. The individuals were successively identified on their photographs, and both the birthday and deathday of each zooid of three successive generations were shown. Two series of experiments were done, the first one started in June (18 cases), and the second one started in September (19 cases).

In the first series populations had various patterns of their fluctuations, while in the second series their patterns were almost the same. These varities were caused by differences of the lifetime of zooids among populations. When a parent zooid was long-lived, lots of its descendants had long lives. On the other hand, when a parent was short-lived, a large number of its descendants had short lives.

Some physiological condition of a zooid may be transmitted to buds of all successive generations.

EC 4

MAINTENANCE OF A CERTAIN RUMEN PROTOZAL POPULATION IN A CONTINUOUS IN VITRO FERMENTATION SYSTEM.

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It has been clarified by the authors that the co-existence of both clumps of fresh and old substrates would be responsible for the maintenance of a rumen protozoal population. Here, we attempted to evaluate the effects of variations in exchanging rate of these clumps upon the number of protozoal population in a continuous in vitro fermentation system. Two different types of systems were employed. One included fresh and old clumps and the other included fresh ones only. The old clump in the former and both clumps in the latter were replaced by fresh ones every 2, 6, 12, 24 and 48 hr. The combination of 24 hr.-old and fresh clumps was found to be most effective in maintaing the protozoal population, and in the system including fresh clumps only a fairly larger amount of protozoa was removed from the system. These results suggest that the sequestration and the effective proliferation of protozoa within old clumps would play important role on the maintenance of rumen protozoal population.

EC 5

THE INTERFERENCE BETWEEN SPECIES OF HYDROZOANS ADHERING TO A SHELL SURFACE OF MYTILUS EDULIS

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Two species of the hydrozoans, Halecium sp. and Hydrodendron sp. which adhered to the shell surface of Mytilus edulis, exuberated colonies in the spring under the surface of the sea about 5-250 cm deep in Kagoshima.

Halecium sp. formed a colony entering around the ligament part of a shell surface. Hydrodendron sp. formed it all over a surface. Each of them showed a characteristic distribution pattern. In the case of the both living together on the same surface, Halecium sp. formed a colony on the fringe of the surface and Hydrodendron sp. did around the ligament. They showed a peculiar pattern.

Moreover, it was observed that there existed the interference or interaction between Halecium sp. and Hydrodendron sp. such as controlling the increase of polyps of Halecium sp. or accelerating the formation of the generative corpus of Halecium sp. or decreasing the population density of Halecium sp. and Hydrodendron sp.