

The Relationship between Antibacterial Activity and Disease Resistance among the Silkworm Races

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It is known generally well that the healthiness differs among races of the silkworm. The resistance to the bacterial disease was chosen as the important factor which formed the healthiness, and the relevance between bacteria resistance and antibacterial activity of silkworm among the races was researched. Using gramnegative bacteria *Serratia marcescens*, percutaneous and oral inoculation were carried out, and the mortality of silkworms larva among the races was investigated. Daizo and Kojiki in which susceptibility is lowered, when it is compared with Oha, Kosetsu and Akako. In all races, there was a silkworm which dies in the die sequente in the experiment which inoculated bacteria high-dense. In the low concentration, the death hour is different among the races, and Aojuku was early. It was proven that the median lethal concentration of Daizo was also higher than that of Akako on 10^5 times. Also the death rate as injected pathogenic bacteria is also different among races, and there was a difference which exceeds 100 times on the 50% lethal dose. Especially, Daizo tended to be higher than other race. In the result of the harrow assay against bacteria, the activity value was different among races in the hemolymph which induced antibacterial activity. By this investigation, the antibacterial activity value showed the high value as race of which the bacteria resistance was high.

Oha and reciprocal crossings of Daizo were done, and BF_1 by the backcross was produced and was similarly investigated of the antibacterial activity. In the result by the hybridization, which of reciprocal matings also showed the activity of the middle of Oha and Daizo. The backcross showed the activity of the middle with each parent.