

P131*Role of JH in the sex-biased termite soldier differentiation***Kiyoto Maekawa**, Shutaro Hanmoto, Dai Watanabe, Kouhei Toga, Toru Miura

Termite soldier is the peculiar caste among other social insects, in terms of its morphology and social function. Generally in termites, soldiers are differentiated from workers via an intermediate state, presoldier. Soldiers are sterile, and have species-specific defensive morphologies. In the basal lineages, sex ratios of soldiers are either equal or only slightly biased. In the apical lineages (family Termitidae), however, there are many species that have soldiers with strongly biased sex ratio. For example, soldiers are all males in most of the examined species in the Nasutitermitinae, while they are females in most species in the Termitinae and Macrotermitinae. High juvenile hormone (JH) titer is required for the soldier differentiation, so that the strongly biased soldier-sex ratio might be caused by the differences of JH titers between male and female workers. To clarify this hypothesis, we focused on the Japanese nasute termite *Nasutitermes takasagoensis*, in which there are three worker types (male-minor, male/female medium, and female-major workers), and male-minor workers molt into presoldiers/soldiers in natural conditions. First, we tried to artificially induce presoldiers from three worker types, according to the previously performed method. Presoldier molt was induced from all worker types, although the induction rate was significantly higher in male-minor workers than in other worker types. Second, JH titers of each worker type were quantified by high performance liquid chromatography-mass spectrometry. The measurements performed in two different seasons (April and December) showed that JH titers in male-minor workers were consistently higher than those of other worker types. These results revealed that male-minor workers maintain JH titers at a high level throughout a year, and this may cause the male-biased presoldier differentiation. Expression analyses of some JH related genes will also be introduced, and the proximate mechanisms on the sex-biased soldier differentiation will be discussed.