

Tadu Z., Djieto-Lordon C., Fomena A., **Babin R.**, Mahiane G., Yede. 2009. Diversity and mosaic structure of ant (Hymenoptera: Formicidae) communities in traditional cocoa agroforestry systems in Southern Cameroon. 16th International Cocoa Research Conference, Bali, Indonesia, 16-21 November 2009 [Abstract].

In cocoa agroforestry systems, ants are the major arthropod component of the canopy. Since dominant ant species are usually active predators of insects, ant communities may help to protect cocoa against insect pests, and especially from cocoa mirids. On the other hand, ant activities may be implicated in disease epidemics, which can lead to significant crop losses. In Cameroon, little information is available on ant communities in cocoa agroforests and on their contribution to cocoa health. Therefore, the main objective of this study was to characterize the ant mosaic in cocoa farms by assessing the diversity of ant species, the nature of ant associations and their ecological statute. For two consecutive years, we collected ants using a chemical knock-down sampling method, in 16 cocoa plantations, situated in three different agro-ecological areas of the Centre region of Cameroon. Ant diversity was assessed using Shannon's index of diversity and the Sorensen's similarity index. Kendall's correlation coefficient was used to determine the nature of the associations between ant species. The robustness of associations was appreciated using chi-square test followed by a Yates corrected test. Fifty one ant species were collected the first year of observation and sixty five the second year. Ants of the subfamilies Formicinae and Myrmicinae were the most abundant and the most diverse in cocoa plantations. According to the Shannon's diversity index, ant communities were less diversified in the plantations located in savannah compared with forest areas. *Oecophylla longinoda*, *Crematogaster clariventris*, *Crematogaster striatula* and *Camponotus acvapimensis* were the most abundant species the first year, with 50.9%, 35.2%, 21.1% and 14.1% of trees colonized respectively. The second year, *O. longinoda*, *Tetramorium aculeatum*, the army ant *Dorylus (Anoma) nigricans* and *C. striatula* were the most abundant, with rates of 82.2%, 44.1%, 39.2% and 29.4%, respectively. Among the dominant species, *O. longinoda* and *T. aculeatum* are known to be beneficial to cocoa. On the other hand, *Crematogaster* spp are usually positively associated with aphids, mealybugs and scale insects, and may be involved in epidemics of the black pod rot of cocoa. The use of our results for integrated crop management strategies is discussed.