Pheromonal plasticity of minor and major workers in the African termite raiding ant Megaponera analis (Latr.)

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The African specialised termite raiding ant Megaponera analis (Latr.) uses contact chemical cues embedded in its cuticle for nestmates recognition. However, it is yet unknown how the different castes within a nest recognise each other especially during raids, or if there exist differences in chemical profiles among worker castes. Using olfactory bioassays and chemical analysis, the roles of olfactory cues in caste recognition and the chemical profiles were investigated. Major and minor workers responded to their own volatiles and to volatiles of mixed groups of workers (major and minor). Qualitatively, profiles of the mixed, major and minor workers were similar. However, quantities of the less volatile hydrocarbons; n-heneicosane, n-tricosane, (Z)-9-tricosene and (Z)-12-pentacosene were ~ 2.5-fold higher in major and minor workers in comparison to those of the mixed group of ants. The implication of the results in relation to colony and raiding party cohesion are discussed.