Cockroaches (Blattaria) are considered to be nearly universally gregarious insect order. In spite of this fact most of the research effort has been devoted to the behaviour of domiciliary species. It is thus not surprising we still do not have comparable information about aggregation behaviour in common laboratory blaberid species. We have investigated aggregation behaviour of adult males and females in six blaberid species: four South American species (Blaberinae: *Eublaberus posticus, Eublaberus distanti, Blaberus discoidalis, Blaberus craniifer*) and two Madagascar species (Oxyhaloinae: *Gromphadorhina portentosa, Princisia vanwaerebeki*). Intraspecific aggregation behaviour was determined using two approaches: the binary choice tests arena and free interaction arena tests. Results obtained with both methods were largely consistent. We have found that blaberid clades clearly differed in their aggregation patterns. (1) Females of *Eublaberus* species aggregated while only a slight and less consistent aggregation tendency was recorded in conspecific males. (2) Both sexes of *Blaberus* species aggregated, especially when tested in the arena. (3) The Madagascar hissing cockroaches of the *Gromphadorhina-Princisia* clade are not gregarious, the aggregation tendency was entirely absent in the males of both species and females of *P.vanwaerebeki*, and it was only weak in females *G.portentosa*. Next, we used binary choice tests to evaluate interspecific aggregation behaviour of *E. posticus* cockroach toward five cockroach species (Blaberidae: Blaberinae, Oxyhaloinae) and two non-cockroach taxa (Caelifera, Phasmatodea). Observed behaviour was discussed according to three suggested hypothesis concerning the mechanism of decision making. We concluded that female decision is made on the basis of the meaning of aggregation signal hold by aggregation stimuli. In the case of the males, aggregation preference is apparently influenced by the conflict of aggregation and sex stimuli.