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**PE-16 Ecological study on the sexual maturation and sexual dimorphism of the coral gall crab, *Pseudohapalocarcinus ransoni* in Odo coast, Okinawa**

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The gall crab *Pseudohapalocarcinus ransoni* (Family Cryptochiridae), which forms galls on frondiform colonies of *Pavona frondifera* (Family Agariciidae), is known as an interesting coral inhabitant. The reproductive ecology of *P. ransoni* was studied based on sexual maturation and sexual dimorphism.

Crabs and their galls were collected at Odo coast lagoon, Okinawa from 2006 (June, September, November) to 2007 (January, April, June, July, September, October) once each month. The gall stage depending on gall valve fusion, carapace width, length (CL), palm length (PL) and width of crabs, sex based on the shape of the abdomen, ovary maturation of non-ovigerous females (immature/mature), egg number and egg development stage (non-eyed/eyed) were recorded. All sexual categories, showing different maturation stages, of *P. ransoni* were recognized in almost all months and the frequencies within each category were not significantly different between months. It is thought that *P. ransoni* does not have a conspicuous female sexual maturation and spawning period. While a seasonal trend of female maturation and spawning was not found, the possibility of a relationship between gall development and female sexual maturation was indicated. This relationship may be the result of an adaptation of female maturation to gall formation. The effect of parasite bopyrid infestation on female crabs, which inhibit their gonad maturation, was observed in females whose CL was larger than 3.00mm. Ovigerous females with eyed eggs were observed during all seasons, suggesting that *P. ransoni* may larvae hatching may occur throughout the year. However, females that had larger CL than 3.10mm did not have eyed eggs. In addition, the relative fecundity based on egg numbers per brood gradually decreased with the body size. This may result in a negative effect of gall development on food supply inside gall.

The sexual dimorphism in chelae of *P. ransoni* was clearly observed; male stout chelae and female slender chelae. This may result in the differences of feeding behavior and role in reproduction between sexes. It is considered that male chelae have advantage for intra-sexual competition and mate-guarding. In contrast, female chelae is possible the result of adaptation to foraging inside her gall. The relative growth of female chelae in relation to CL indicated that the female chelae and carapace grow proportionally. In contrast, male PL varied extensively between individuals that had the same CL, indicating the continuous growth of male chelae, whereas carapace growth stops after they have matured. The results of this study suggest that biological aspect of *P. ransoni* which female maturation and spawning are strongly affected by gall development and they do not change sex.