

## V. CONCLUSIONS AND SUGGESTIONS

### A. Conclusions

1. The morphology and morphometrics of the types *Geosesarma dennerle* and *G. hagen* are morphologically similar but they can be distinguished by the shape of the external orbital tooth, the distinct color of the carapace and the color of chela. For morphometrics there are no significant differences between *G. dennerle* and *G. hagen*.
2. The DNA barcoding library has been built in BOLD under the project “BICC DNA Barcoding of *Geosesarma* spp. from Java”. The BOLD’s RESL algorithms generate Barcode Index Numbers (BIN) for the outgroup BOLD:AFF8991, *Geosesarma hagen* BOLD:AFF5248, and *Geosesarma dennerle* BOLD:AFF6307, BOLD:AFF6306, and BOLD:AFF6308. The barcodes were deposited to Genbank NCBI with number access OR147199-OR147215 for COI and OR257785-OR257801 for 16S RNA. This study has contributed to provide the first database of COI and 16s RNA genes of *Geosesarma dennerle* and *G. hagen*, and the outgroup *Terrathelphusa chilensis*.
3. Genetic threshold between *Geosesarma hagen* and *G. dennerle* is 1.8%. For *Geosesarma hagen*, the haplotype diversity (Hd) is obtained with 1.00000 and the nucleotide diversity is about 0.00400, whereas for *Geosesarma dennerle* 0.97222 and 0.03720, respectively. For overall values obtained 0.99048 for haplotype diversity and 0.02986. That indicates both species have high haplotype diversity but on the nucleotide diversity, *G. hagen* has a lower nucleotide diversity than *G. dennerle*.

### B. Suggestions

In the next research, the author suggests to clearly see the morphological characters by using Scanning Electron Microscope (SEM) method in finding the new morphological characters, especially the mouth parts.