**Biochemical changes of cryopreserved seminal plasma and spermatozoa of the giant grouper Epinephelus lanceolatus after preservation and transportation using dry-ice**


## ABSTRACT

The present study aims to investigate the effects of exposure of the seminal plasma and spermatozoa of the giant grouper Epinephelus lanceolatus to dry ice (  79  C) during transport on their quality. In all, 15 amino acid compounds were determined. The quantification of total proteins were measured using the Bradford method, and amino acid concentration were measured using the HPLC method. The cryopreserved seminal plasma was transferred from a liquid nitrogen tank to a styrofoam box filled with dry ice. Total protein and amino acids were measured after 24, 48, and 72 h. For comparative purposes, total protein and fifteen compound of amino acid were also measured. Both parameters were also measured after the cryopreserved seminal plasma were immersed in liquid nitrogen after 24 and 48 h exposed to dry ice. The results showed that the exposure of seminal plasma to dry ice for 24, 48 and 72 h during transportation or immersion back into the liquid nitrogen after 24 and 48 h does not change the total protein levels either in seminal plasma or spermatozoa. However, the level of each amino acid compound in the seminal plasma had significantly decreased