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Moina macrocopa culture using plasma activated water (PAW)

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Water flea (*Moina macrocopa*) is high protein food for nursing of cultured freshwater fish. Production of *Moina* and their food is practical in commercial fish culture. In good environmental conditions, females are parthenogenetic. In this case, water fleas are able to multiply rapidly if the water conditions are suitable. However, when conditions deteriorate, some of the offsprings become males and these males mate with other females to produce fertilised eggs. To meet the optimal conditions, oxygen level and feeding should be well controlled. This research utilized plasma activated water (PAW) to increase reactive oxygen nitrogen species (RONS) in the water. This work investigated the use of PAW in culturing water flea in tap water and water treated with activated plasma for different activation times. Samples of water flea were cultured in PAW for 7 days. Sex determination was then carried out. It was found that concentration of the reactive oxygen nitrogen species increased with the treatment time. Flea water in this work appeared lighter red than commonly observed because of high oxygen dissolved in water, leading to lack of oxygen in hemoglobin. Sex determination revealed that female population in plasma treated water was observed to be more than that in tap water but less than that in the one commonly used in water flea culture. This might be due to the lack of *Chlorella*, essential food for water flea.

Keywords: plasma activated water (PAW), plasma arc discharge, *Moina*, oxygen levels,

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