

SUMMARY

Black soldier fly (*Hermetia illucens*) is one of the biological agents for organic waste decomposition and this process produced insect biomass with significant economic value. Giving of juvenile hormone (JH) which is thought to be present in nappier grass (*Pennisetum purpureum*) can increase the number of BSF egg production. The purpose of this research is to determine the effect of nappier grass extract on the reproductive performance of *H. illucens* based on the number of eggs produced, the percentage of eggs hatched, and the sex ratio of BSF flies. The research was conducted experimentally using a completely randomized design (CRD). The number of eggs produced and the percentage of eggs hatched analyzed using non-parametric analysis with the *Kruskal-wallis* test and followed by the Mann Whitney test. Statistical testing using SPSS version 16.0. The sex ratio of BSF flies was analyzed descriptively. Phytochemical test analysis was carried out to ensure the content of compounds present in nappier grass extract (*P. purpureum*). The result shows that nappier grass extract has significant effect ($P < 0.05$) on number of eggs produced and the percentage of eggs hatched based on *Kruskal-wallis* test. Based on the results of the Mann Whitney test, it was found that all treatments of nappier grass extract on the number of BSF egg production and the percentage of eggs hatched was significantly different ($P < 0.05$). The highest egg production effect which the average number of egg production was 209 mg at 600 ppm. At 600 ppm had the highest percentage egg that hatched effect which the average of percentage egg that hatched was 88,759%. The optimum sex ratio for the cultivation was at 200 ppm, which is 60.42% female and 39.58% male.

Keywords: Black Soldier Fly, *Pennisetum purpureum*, Reproductive performance

