

ABSTRAK

Kemampuan infeksi cendawan entomopatogen *Cordyceps militaris* pada larva dan pupa ulat api *Setothosea asigna* (Lepidoptera: Limacodidae)

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Kombinasi penggunaan insektisida organoklorin dan clean weeding di diduga penyebab terjadinya ledakan hama ulat api di perkebunan kelapa sawit. Ledakan hama ini karena musuh alami mati, tidak ada pakan serta tempat refugia. *Cordyceps militaris* merupakan salah satu agen hayati ulat api *Setothosea asigna*, yang mampu diperbanyak dalam jumlah masal pada media jagung. Aplikasi *C. militaris* biasanya ditaburkan atau disemprotkan ke piringan tanaman kelapa sawit dengan target infeksi berupa pupa *S. asigna*. Beberapa penelitian menyebutkan *C. militaris* mampu menimbulkan infeksi pada fase larva *S. asigna* di laboratorium. Penelitian ini bertujuan mengkonfirmasi ulang bahwa biakan jagung *C. militaris* dengan dosis optimum penelitian sebelumnya 15g/100 ml mampu menimbulkan infeksi *S. asigna* fase pupa dan fase larva. Mortalitas larva *S. asigna* 100% terjadi pada 4 hari setelah aplikasi (has). Larva mati dicirikan berwarna coklat, larva keluar cairan, larva tubuh masih utuh dan ditumbuhi miselium. Pupa terinfeksi tidak terlihat dari luar karena dilindungi oleh kokon. Pada hari ke 16 has kokon dibuka, terlihat perbedaan antara pupa terinfeksi dan yang tidak. Pupa terinfeksi masih dalam bentuk larva instar terakhir, ditumbuhi miselium dan mati. Pupa kontrol pada 16 has sudah berubah bentuk menjadi calon imago dengan bakal sayap, kepala, badan. *C. miliaris* dalam media jagung dan PDA berwarna putih atau tidak terbentuk pigmen. *C. militaris* yang berasal dari larva dan pupa terinfeksi, mampu tumbuh di PDA berwarna kehijauan dan terbentuk konidia. Konidia *C. militaris* dari larva sudah banyak terbentuk saat PDA berumur 6 hari, sedangkan pupa baru proses awal pembentukan konidia. *C. militaris* dari media jagung, pada hari ke 6 baru terbentuk miselium tanpa konidia. Penelitian ini disimpulkan bahwa *C. militaris* mampu menginfeksi *S. asigna* baik pada fase larva dan pupa.

Kata kunci: cendawan, *Cordyceps*, entomopatogen, pupa, ulat api

ABSTRACT

Infection ability of the entomopathogenic fungus *Cordyceps militaris* on larvae and pupae of nettle caterpillar *Setothosea asigna* (Lepidoptera: Limacodidae)

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Combination between organochlorine and clean weeding is suggested for nettle caterpillar outbreak in oil palm plantation. Insecticides lead to natural enemies died, clean weeding caused food shortages and lack of refuge areas for its natural enemies. *Cordyceps militaris* is one of fungus biological controls to *Setothosea asigna*. This fungus is possible to produce in large quantities on maize. *C. militaris* is typically sprinkled or sprayed onto palm circle as pupae targeted. Several studies have shown that *C. militaris* can also infect larval stages of *S. asigna* in the laboratory. This study aim is to confirm that *C. militaris* in maize media, at optimal dose 15 g/100 ml (based on previous study) could induce infection on both *S. asigna* larval and pupal stages. Four days after application ('daa'), 100% mortality was observed in *S. asigna* larvae. Dead larvae were characterized by brown coloration, larval excretion, intact but fragile larvae, and mycelial growth. Infected pupae are not visible externally because they are protected by cocoons. After 16 'daa' there were difference between infected and control pupae. Infected pupae were still in the final larval stage, covered in mycelium, and died. Control pupae had developed into adults with wings, head, and body. *C. militaris* on maize and PDA medium was white or lacked pigment. *C. militaris* derived from infected larvae and pupae were able to grow and produce greenish conidia on PDA. *C. militaris* conidia from larvae had already formed in large quantity after 6 days on PDA, while the pupae were only in the early stages of conidia formation. *C. militaris* derived from maize formed only mycelium without conidia. This study concluded that *C. militaris* could infect both larval and pupal stages of *S. asigna*.

Keywords: fungus, *Cordyceps*, entomopathogen, pupae, nettle caterpillar