

ABSTRACT

THE EFFECTIVENESS OF DODDER (*Cuscuta* sp.) CRUDE EXTRACT AS AN ANTIBACTERIAL OF *Streptococcus agalactiae* (Lehmann & Neumann, 1896) IN TILAPIA FRY *Oreochromis niloticus* (Linnaeus, 1758)

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Tilapia (*Oreochromis niloticus*) is one of the superior freshwater fishery commodities in Indonesia. However, aquaculture has an obstacle, namely the lack of healthy fish fry due to Streptococcus disease by *Streptococcus agalactiae* bacteria. One of the natural ingredients that is thought to have antibacterial properties is dodder (*Cuscuta* sp.). This research was conducted to analyze the effectiveness of dodder extract as a control of *S. agalactiae* bacterial infection in tilapia fry at the Laboratory of Aquaculture, University of Lampung. Dodder collected from several places in Lampung Province. Dodder was extracted using 50% ethanol solvent at room temperature to obtain crude extract (CE). CE was tested on an in vitro scale against *S. agalactiae* bacteria with the disc diffusion procedure. Furthermore, CE of the dodder was tested for minimum inhibitory concentration (MIC) with concentrations of 100 ppm, 300 ppm, 500 ppm, and 700 ppm. Furthermore, toxicity tests were carried out on tilapia fry with concentrations referring to the MIC test. The results showed that the yield of dodder extract was 11.46%. The content of active compounds from the phytochemical test of dodder extract included steroids, flavonoids, alkaloids, saponins, and tannins. The results of the GC-MS test for dodder extract yielded a 9-octadecenoic compound with a retention area value of 10.38%. Dodder extract was able to inhibit *S. agalactiae* bacteria from a concentration of 100 ppm with an inhibition zone of 6.64 mm to thick without dilution with an inhibition zone of 7.50 mm. Based on the results of the MIC test, the best concentration for wound healing was 100 ppm. The results of the toxicity test (LC₅₀) at a concentration of 100 ppm showed the lowest mortality rate of tilapia fry when compared to other concentrations. Based on the results that had been obtained, it showed that CE of the dodder was potential enough to be developed as an antibacterial for *S. agalactiae*.

Key Words : tilapia, *Streptococcus agalactiae*, *Cuscuta* sp., antibacterial test, minimum inhibitory concentration test

ABSTRAK

EFEKTIVITAS EKSTRAK TALI PUTRI (*Cuscuta* sp.) SEBAGAI ANTIBAKTERI *Streptococcus agalactiae* (Lehmann & Neumann, 1896) PADA BUDI DAYA NILA *Oreochromis niloticus* (Linnaeus, 1758)

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Nila (*Oreochromis niloticus*) merupakan salah satu komoditas perikanan air tawar yang unggul di Indonesia. Namun, dalam kegiatan budi daya memiliki kendala yaitu kurangnya benih ikan sehat karena terserang oleh bakteri *Streptococcus agalactiae*. Salah satu bahan alami yang diduga bersifat antibakteri adalah tali putri (*Cuscuta* sp.). Penelitian ini dilakukan untuk menganalisis efektivitas ekstrak tumbuhan tali putri sebagai pengendali infeksi bakteri *S. agalactiae* pada benih nila di Laboratorium Budidaya Perikanan Universitas Lampung. Tali putri dikoleksi dari beberapa tempat di Provinsi Lampung. Tali putri diekstrak menggunakan pelarut etanol 50% pada suhu ruang untuk mendapatkan *crude extract* (CE). CE diuji skala *in vitro* terhadap bakteri *S. agalactiae* dengan prosedur difusi cakram, selanjutnya CE tali putri diuji *minimum inhibitory concentration* (MIC) dengan konsentrasi 100 ppm, 300 ppm, 500 ppm, dan 700 ppm. Selanjutnya dilakukan uji toksisitas pada benih ikan nila dengan konsentrasi merujuk pada uji MIC. Hasil penelitian didapatkan rendemen ekstrak tali putri sebesar 11,46%. Kandungan senyawa aktif dari uji fitokimia ekstrak tali putri antara lain steroid, flavonoid, alkaloid, saponin, dan tanin. Hasil dari uji GC-MS ekstrak tali putri menghasilkan senyawa 9-octadecenoic dengan nilai *retention area* sebesar 10,38%. Ekstrak tali putri mampu menghambat bakteri *S. agalactiae* dari konsentrasi 100 ppm dengan zona hambat sebesar 6,64 mm hingga kental tanpa pengenceran dengan zona hambat sebesar 7,50 mm. Berdasarkan hasil uji MIC, konsentrasi terbaik untuk penyembuhan luka adalah 100 ppm. Hasil uji toksisitas (LC₅₀) pada konsentrasi 100 ppm menunjukkan tingkat kematian benih ikan nila terendah jika dibandingkan dengan konsentrasi yang lain. Berdasarkan hasil yang telah didapatkan, diketahui bahwa CE tali putri cukup potensial untuk dikembangkan sebagai antibakteri *S. agalactiae*.

Kata Kunci : ikan nila, *Streptococcus agalactiae*, *Cuscuta* sp., uji toksisitas, uji *minimum inhibitory concentration* (MIC)