PENGARUH EKSTRAK PERASAN DAUN SIRSAK (*Annona muricata* L) SEBAGAI INHIBITOR NITRIFIKASI PADA *Xanthomonas campestris*

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INTISARI

Nitrifikasi pupuk baik organik dan anoragnik yang terjadi di lahan pertanian oleh bakteri patogen sangatlah tidak diharapkan. Hal itu dapat menyumbang kenaikan konsentrasi gas nitrous oksida dan populasi bakteri patogen. Penelitian ini bertujuan untuk mengetahui pengaruh dari ekstrak perasan daun sirsak (*Annona muricata* L) sebagai inhibitor nitrifikasi bakteri patogen tanaman, *X. campestris* yang diberi nutrisi nitrat anorganik. Konsentrasi ekstrak perasan daun sirsak yang diujikan 0%, 5%, 10%, 20%, 50%, 75%, 80%, dan 100%. Kemampuan daya hambat ditunjukkan dengan zona hambat dengan metode *Kirby-Bauer Test*, pertumbuhan bakteri *X. campestris* pada absorbasi 600 nm, dan viabilitas sel bakteri setelah ditumbuhkan pada medium cair dengan ditambahkan ekstrak perasan daun sirsak. Daya hambat ekstrak perasan daun sirsak terhadap bakteri *X. campestris* terbentuk dan terlihat pada konsentrasi ekstrak 75%, 80%, dan 100% dengan konsentrasi nitrat 0,04%, dan 0,5%. Pemberian $NaNO_3$ pada medium 1/10 nutrisi (CM0001) tumbuh sebagai sumber nitrogen signifikan meningkatkan pertumbuhan bakteri *X. campestris.* Ekstrak perasan daun sirsak (*Annona muricata* L) yang telah diujikan sebagai inhibitor nitrifikasi *X. campestris* belum dapat membunuh sel *X. campestris* yang dibuktikan dengan penumbuhan bakteri pada ekstrak konsenstrasi 100%. Hasilnya masih terdapat adanya bakteri *X.campestris* yang tumbuh.

Kata kunci: nitrat, zona hambat, viabiitas sel, membrane sel

EFFECT OF SOURSOP LEAVES EXTRACT (*Annona muricata* L) AS NITRIFICATION INHIBITOR ON *Xanthomonas campestris*

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ABSTRACT

Nitrification of fertilizers as organic and anoragnic occurs in agricultural field by pathogenic bacterias are very unexpected. The condition contribute increasing concentration of nitrous oxide and population of pathogenic bacterias. This study aims to determine the effect of soursop leaves crushing filtrat extract (*Annona muricata* L) as a nitrification inhibitor of plant pathogenic bacteria, *X. campestris* on inorganic nitrate medium. The extract concentration was tested 0%, 5%, 10%, 20%, 50%, 75%, 80%, and 100%. The ability of inhibition is shown by the inhibition zone with the Kirby-Bauer Test method, *X. campestris* bacteria growth at 600 nm absorbance, and viability of bacterial cells after grown by adding soursop leaf extract on liquid medium. The inhibitory ability of soursop leaf extract against *X. campestris* bacteria was seen and formed at extract concentrations of 75%, 80%, and 100% with concentration of nitrate 0.04%, and 0.5%. The administration of $NaNO_3$ on 1/10 nutrient medium (CM0001) as nitrogen source significantly increasing the growth of *X. campestris* bacteria. Soursop leaves extract (*Annona muricata* L) which has been tested as a nitrification inhibitor of *X. campestris* has not been able to kill *X. campestris* cells as evidenced by the growth of bacteria in 100% concentration extracts. The result is that there are still growing *X.campestris* bacteria.

Keywords: nitrates, inhibiting zone, cell viabilties, cell membranes