Anti - malaria study of nigella sativa L. seed water extract in mus musculus mice Balb C strain in vivo = Pengujian efek anti malaria ekstrak air biji nigella sativa L. secara in vivo pada mencit (mus musculus) galur Balb C

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Abstrak

Nigella sativa L. dilaporkan memiliki berbagai efek farmakologis termasuk sebagai anti parasit. Pengujian efek antimalaria dari ekstrak air biji N. sativa
secara invivo terhadap mencit (Mus musculus) yang diinfeksi parasit malaria Plasmodium berghei NK65 telah dilakukan. Metode yang digunakan adalah pengujian mikroskopik dengan pewarnaan Giemsa terhadap sampel darah hewan uji. Penentuan kadar NO dengan metoda spektrofotometri dilakukan untuk mengetahui efek ekstrak air biji N. sativa terhadap kadar NO mencit yang terinfeksi parasit malaria P. berghei NK65. Ekstrak air biji N. sativa
diberikan kepada mencit yang terinfeksi parasit malaria dalam periode 20 hari untuk mengetahui efek pemberian ekstrak air tersebut terhadap kelangsungan hidup (survival life) mencit. Hasil penelitian menunjukkan bahwa ekstrak air biji N. sativa dapat menurunkan jumlah parasit malaria P. berghei NK65 dan menurunkan kadar NO pada hewan coba pada dosis yang digunakan. Pemberian ekstrak air biji N. sativa pada dosis 100μg/kgBB memberikan efek relatif lebih baik terhadap kelangsungan hidup mencit yang diinfeksi P. berghei NK65 dibanding dosis lain. N. sativa dapat menghambat jumlah parasit dan kadar NO. NO dapat berfungsi sebagai anti parasit pada kadar tertentu, apabila kadarnya terlalu kecil fungsi sebagai antiparasitnya tidak optimal, namun jika kadarnya terlalu tinggi akan bersifat merusak karena sifat radikal bebasnya.
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Abstract
Nigella sativa L. has been reported to exhibit many pharmacological
effects, including anti-parasitic properties. This study investigated the anti-malarial effects of a water extract of N. sativa seed in Mus muculus mice infected with the Plasmodium berghei NK65 parasite. The method used was to take a blood parasitaemia count, following the use of Giemsa dye, determining the level of nitric oxide in mice that were infected with P. berghei malaria, using the spectrophotometric method, and determining their survival rate after 20 days of being infected with P. berghei malaria. The results showed that the decrease in the number of parasita
emia and the level of nitric oxide in subjects treated with doses of N. sativa was significant ($p < 0.05$). Further results showed that P. berghei-infected mice that were given 100 μg/kg of body weight had a better chance of survival. The conclusion is that the provision of N. sativa may reduce the
number of malaria parasites and reduce levels of NO. The decrease in the number of parasites may be caused by an immune mechanism, through the regulation of NO levels (lower levels of NO), due to the influence of the anti-oxidant effects of N. sativa. Survival rates of the mice did not show significant results with reduced levels of parasitaemia and NO. This is likely to be because the levels of NO in this group were below the threshold levels at which NO can function as an anti-parasitic. It is alleged that, while NO can

function as an anti-parasitic at certain levels, at lower levels its function as an antiparasitic is not optimal. On the other hand, if the levels are too high, damage will result, because of the nature of free-radicals.