

ABSTRAK

Latar Belakang. Hingga kini telah banyak dilakukan penelitian ekstrak buah Balakka dan potensi efek protektifnya terhadap toksisitas organ secara *in vivo*, tetapi masih belum ada penelitian efek hepatoprotektif ekstrak etanol buah Balakka (*Phyllanthus emblica L.*), dan masih belum ada hasil penelitian efek hepatoprotektifnya terhadap hepatotoksitas yang diinduksi obat antikanker, khususnya doksorubisin pada hewan coba tikus, serta masih diperlukan data perbandingan efek hepatoprotektifnya melalui uji fungsi hati dan gambaran histologi organ hati tikus.

Tujuan. Untuk mengetahui potensi efek protektif ekstrak etanol buah Balakka (*Phyllanthus emblica L.*) terhadap hepatotoksitas yang diinduksi doksorubisin pada tikus.

Metodologi. Penelitian ini menggunakan penelitian eksperimental dengan rancangan acak lengkap untuk mengetahui potensi efek protektif dari ekstrak etanol buah Balakka (*Phyllanthus emblica L.*) terhadap hepatotoksitas yang diinduksi doksorubisin pada tikus (*Rattus norvegicus*).

Hasil. Hasil uji fitokimia kualitatif ekstrak etanol buah Balakka mengandung flavonoid, fenol, tanin, triterpenoid, terpenoid dan alkaloid. Dari hasil uji hipotesis dijumpai ada perbedaan kadar rerata SGPT antara kelompok A (Normal) dengan kelompok B (Doksorubisin), D (Perlakuan1) dan E (Perlakuan 2) bermakna secara statistik ($p=0,000^*$; $p=0,007^*$, $p=0,005^*$) dan antara kelompok B (Doksorubisin) dengan kelompok C, D dan E (Ekstrak Etanol Buah Balakka) bermakna secara statistik ($p=0,000^*$; $p=0,006^*$, $p=0,001^*$). Tetapi tidak ada perbedaan rerata kadar SGPT antara sesama kelompok perlakuan D dan E ($p=0,433$). Berdasarkan kadar rerata ALP, dijumpai ada perbedaan kadar rerata ALP antara kelompok A (Normal) dengan kelompok B (Doksorubisin), D (Perlakuan1) dan E (Perlakuan 2) bermakna secara statistik ($p=0,001^*$; $p=0,000^*$, $p=0,003^*$) dan antara kelompok B (Doksorubisin) dengan kelompok C dan E (Ekstrak etanol buah Balakka) yang bermakna secara statistik ($p=0,006^*$; $p=0,022^*$). Dan ada perbedaan rerata kadar ALP yang bermakna antara kelompok D dan E ($p = 0,005^*$). Dari hasil pemeriksaan histologi hati tikus, dijumpai ada perbaikan jaringan hati pada kelompok D dan E (perlakuan dengan ekstrak etanol buah balakka) menyerupai jaringan hepar kelompok A (tikus normal) dibandingkan dengan kelompok B (tikus diinduksi doksorubisin).

Kesimpulan. Ekstrak etanol buah Balakka *Phyllanthus emblica L.* mengandung senyawa flavonoid, fenol, tanin, triterpenoid, terpenoid dan alkaloid. Pemberian ekstrak etanol buah Balakka dengan dosis 400 mg/kgBB.dapat menurunkan kadar SGPT dan ALP mendekati kadar normal serta dapat memperbaiki jaringan hati tikus pada kelompok tikus dengan hepatotoksitas yang diinduksi doksorubisin dengan dosis 400 mg/kgBB.

Kata Kunci : *Phyllanthus emblica*, hepatotoksitas, doksorubisin, fungsi dan jaringan hati

ABSTRACT

Background. Until now has been a lot of research conducted balakka fruit extracts and potential protective effects on the toxicity of organs in vivo, but there is still no study of the effect of hepatoprotective ethanolic extract of *Phyllanthus emblica L* (Balakka) fruit, and there has been no research results of its hepatoprotective effects on hepatotoxicity induced anticancer drugs, especially doxorubicin in rats, as well as the necessary comparative data of the effect of hepatoprotective effects through liver function tests and a description of histology of rat liver organ.

Purposes. To know the potential protective effect of the ethanolic extract *Phyllanthus emblica L*. (Balakka) fruit against hepatotoxicity induced doxorubicin in rats.

Methodology. The Study used experimental studies with complete randomized designs to find out the potential protective effects of the ethanolic extract *Phyllanthus emblica L*. (Balakka) fruit against the hepatotoxicity of the induced doxorubicin in rats (*Rattus norvegicus*).

Results. Results of qualitative phytochemical test of the ethanolic extract *Phyllanthus emblica L*. (Balakka) fruit contains flavonoids, phenols, tannins, triterpenoids, terpenoids and alkaloids. From the hypothesis test results found there was a statistically significant difference in the mean of SGPT levels between group A (Normal) with group B (Doxorubicin), D (1st Treatment) and E (2nd Treatment) ($p = 0,000 *$; $p = 0,007 *$, $p = 0,005 *$) and a statistically significant difference between group B (Doxorubicin) with groups C, D and E (with the ethanolic extract *Phyllanthus emblica L*. (Balakka) fruit) ($p = 0,000 *$; $p = 0,006 *$, $p = 0,001 *$). But there was no statistically significant difference in the mean of SGPT levels between fellow treatment groups D and E ($p = 0,433$). Based on ALP levels, there was a statistically significant difference of ALP level between group A (Normal) and group B (Doxorubicin), D (1st Treatment) and E (2nd Treatment) ($p = 0,001 *$; $p = 0,000 *$, $p = 0,003 *$) and a statistically significant difference between group B (Doxorubicin) with the group C and E (with the ethanolic extract Balakka fruit) ($p = 0,006 *$; $p = 0,022 *$). And there was a statistically significant difference in the mean of ALP levels between groups D and E ($p = 0,005 *$). From the results of a rat liver histology examination, there was a regeneration of liver tissue in the group D and E (the treatment with the ethanolic extract Balakka fruit) resembles the hepar tissue of group A (normal mice) compared to group B (rat-induced doxorubicin).

Conclusions. The ethanolic extract *Phyllanthus emblica L*. (Balakka) fruit contains compounds of flavonoids, phenols, tannins, triterpenoids, terpenoids and alkaloids. The administration of the ethanolic extract Balakka fruit at a dose of 400 mg/kgbb may decrease the levels of SGPT and ALP serum approaching to normal levels as well as could repair liver tissue damage in rat groups with the hepatotoxicity induced doxorubicin at a dose of 400 mg/kgbb.

Keywords: *Phyllanthus emblica*, hepatotoxicity, doxorubicin, liver function and tissue