

## RINGKASAN

**PENENTUAN DOSIS LETAL 50 % INFUS BENALU DUKU (*LORANTHACEAE DENDROPHTHOE SPEC.*) PADA MENCIT (*RATTUS NORVEGICUS STRAIN WISTAR*) PEMBERIAN ORAL**

(Roostantia Indrawati, Ratna Sofaria Munir, Lazuardi M, 2005, 33 halaman)

Benalu duku secara empirik diketahui merupakan salahsatu tumbuhan perdu parasitik yang secara laboratorik diketahui berkhasiat sebagai antikanker. Tinjauan teoritik menunjukkan bahwa bagian sari tumbuhan benalu umumnya mengandung Viskotoksin, Mistellektin serta unsur tumbuhan lain seperti Glikosida (Saponin), Tanninum dan unsur toksik seperti Mamosin. Secara spesifik macam, jenis maupun sifat fisikokimia fitofarmaka sari benalu duku hingga saat belum diketahui termasuk unsur toksik didalamnya. Terkait upaya eksplorasi fitofarmaka benalu duku, maka perlu dilakukan studi mengenai pemberian unsur tumbuhan di atas dosis lazim dan disari melalui cara infusum. Hingga saat ini studi mengenai pemberian dosis diatas dosis lazim (termasuk dosis letal) tentang benalu duku yang disari secara infusum, belum pernah dilakukan. Dilatarbelakangi permasalahan tersebut di atas maka dilakukan studi mengenai dosis letal 50 % terhadap benalu duku yang disari dengan cara infusum. Tujuan penelitian ini adalah untuk mengetahui jumlah tertentu sari benalu duku larut air panas yang mampu mengakibatkan kematian hewan coba (termasuk dampak terhadap struktur histologi hati dan ginjal).

Metode penelitian yang dipilih dalam rancangan operasional adalah pasca perlakuan dengan grup kontrol, dengan jumlah serial kadar infusum benalu duku yang diujikan yaitu 50 %, 60 %, 70 % dan 80 %. Dosis letal setiap kadar yang diberikan adalah 1 ml, 2 ml, 2,5 ml/20 g berat badan hewan coba. Hewan coba yang digunakan adalah mencit dengan kriteria jantan, usia 2-3 bulan, berat badan  $\pm 20$  g (diperoleh dari Pusat Veterina Farma Jl. A. Yani Surabaya). Sampel hewan coba yang digunakan dalam serial kadar uji tiap dosis uji adalah 10 ekor mencit. Penentuan jumlah sampel didasarkan pada persamaan  $[(Z_{1-\alpha/2}) + Z_{\beta}]^2 / [(d)^2 / \{(S_a)^2 + (S_b)^2\}]$ , dimana  $Z_{1-\alpha/2}$  1,96,  $Z_{\beta}$  (5 %) bernilai 1,645, d

= 0,3,  $S_a = 0,2$ , sedangkan  $S_b = 0,17$ . Penelitian ini dilakukan selama tiga bulan (Agustus hingga Oktober 2005) dan dikerjakan dalam lingkungan Universitas Airlangga. Data hasil penelitian berupa nilai dosis letal 50 %, dan gambaran kerusakan struktur histologi hati dan ginjal pasca perlakuan secara *post mortem* pada subyek perlakuan dan kontrol. Metode pengumpulan data atau desain pengerjaan dilakukan dengan cara memberikan serial kadar 50 % hingga 80 % infus benalu duku dengan dosis 1 ml, 2 ml, 2,5 ml/20 g berat badan menggunakan sonde lambung.

Selanjutnya dilakukan pengamatan jumlah kematian dan diperbandingkan dengan kontrol pasca pemberian aqua pro injeksi. Hewan coba dilakukan nekropsi dan dilakukan biopsi pada hati dan ginjal untuk pemeriksaan struktur histopatologi. Analisis data dilakukan dengan menggunakan cara probit test. Gambaran kerusakan struktur histologi organ hati dan ginjal dilakukan studi komparasi dengan kelompok kontrol menggunakan cara *Fisher exact test* signifikansi 5 %.

Hasil penelitian menunjukkan nilai dosis letal 50 % pada mencit pemberian infus benalu duku 50 % didapat 2,377 ml, kadar 60 % didapat 1,737 ml, kadar 70 % didapat 1,417 ml, kadar 80 % didapat 1,172 ml. Pemberian infus benalu duku kadar 50 % dan 60 % tak menimbulkan kerusakan struktur histologi organ hati mencit. Pemberian kadar 70 % dan 80 % mampu merusak struktur histologi organ hati mencit ( $p < 0,05$ ). Pemberian infus benalu duku pada kadar 50 %, 60 %, 70 % dan 80 % tak menimbulkan kerusakan struktur histologi organ ginjal mencit.

Rekomendasi hasil penelitian yaitu perlu dilakukan penelitian lanjutan dengan teknik penyarian non-air panas sekaligus sebagai upaya eksplorasi bioaktif sari benalu duku, termasuk menggunakan hewan coba golongan primata.

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**SUMMARY****THE DETERMINATION OF 50 % LETHAL DOSE OF BENALU DUKU INFUSION (*LORANTHACEAE DENDROPHTHOE SPEC.*) ON MICE (*RATTUS NORVEGICUS STRAIN WISTAR*) BY ORAL ADMINISTRATED**

(Roostantia Indrawati, Ratna Sofaria Munir, Lazuardi M, 2005, 33 pages)

The empirical study were knowing that benalu duku as a parasitic trees was used anticancer in laboratory. The theoretical study were shown that bio active of benalu trees were contained Viscotoxin, Mistellectin and other substances as follows : Glycoside (Saponine), Tannin and other toxic substances like Mammosin. In recent study showed bio active of benalu duku or other toxic substance of benalu duku were not known yet. For explored of benalu duku, we must explored more study of side effect benalu duku were processes by infusum and giving oral at more than usual dose. Base on the empirical problems as described at above, we were researched of 50 % implication benalu duku administrated were process by infusum at lethal dose. The objectives of these research were to knowing lethal dose 50 % to animal experimental and implication in their liver and kidney after giving benalu duku were processed by infusum.

The research method was used by post test only control group design with serial dose of benalu duku at 50%, 60 %, 70 %, 80 % concentration. The lethal dose were giving at series 1 ml, 2 ml, 2,5 ml/20 g body weight. The animal experimental were used by mice (male, 2-3 month age,  $\pm$  20 g body weight obtained from Center of Veterinarian Pharmaceutics, A. Yani street Surabaya. The mouse were used each dose in our study. The determination of sample size was base on equation  $[(Z_{1-\alpha/2}) + Z_{\beta}]^2 / [(d)^2 / \{(S_a)^2 + (S_b)^2\}]$ , with  $Z_{1-\alpha/2} = 1,96$ ,  $Z_{\beta} (5\%) = 1,645$ ,  $d = 0,3$ ,  $S_a = 0,2$ , and  $S_b = 0,17$ . These research were planing at 3 month (2005 of August to October) and working in Airlangga University laboratory.

The research data were consist of 50 % lethal dose at concentration 50 % to 80 % infus benalu duku with 1 ml, 2 ml, 2,5 ml.20 g<sup>-1</sup> body weight dose administrated by stomach tube. The control was used similar dose with aqua pro injection and will be compared with the trials group about number of died mice. All of subject were analyzed histopathology in liver and kidney. The histopathology analysis was used analyzed by Fisher exact test (significantly 0.05).

The result research were as follows : The 50 % lethal dose of benalu duku was obtained at 2.377 ml.20g bw<sup>-1</sup>, 60 % of benalu duku was obtained at 1.737 ml. 20g bw<sup>-1</sup>, 70 % of benalu duku was obtained at 1.417 ml. 20g bw<sup>-1</sup> and 80 % of benalu duku was obtained at 1.172 ml. 20g bw<sup>-1</sup>. The concentration 50 % and 60 % of benalu duku can not destroying histological structures of liver and kidney, but at concentration 70 % and 80 % of benalu duku can be destroying histological structure of liver (p<0.05), but 50 %, 60 %, 70 % and 80 % of benalu duku cannot destroyed histological structure of kidney.

Recommendation of these research were as follows : These research must be continuously with modified research method on other extraction and will be giving probabilities known of bio actives benalu duku and also dose response in primate subject.

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