

RINGKASAN

PEMANFAATAN EKSTRAK JAMUR *Coriolus versicolor* SEBAGAI IMUNOMODULATOR RESPON IMUN NON-SPEKIFIK PADA TIKUS PUTIH AKIBAT INDUKSI 2-METOKSIETANOL

(Sri Puji Astuti Wahyuningsih, 2006, 32 halaman)

2-Metoksietanol (2-ME) diketahui bersifat imunotoksik dan immunosupresif terhadap sistem pertahanan tubuh. Sedangkan, ekstrak jamur *Coriolus versicolor* diduga bersifat sebagai immunomodulator dan sebagai agen pengubah respon biologi yang mampu memulihkan penurunan respon imun non-spesifik.

Permasalahan pada penelitian adalah (1) apakah induksi 2-ME menyebabkan penurunan fungsi respon imun non-spesifik pada tikus putih ?, (2) apakah ekstrak jamur *Coriolus versicolor* yang diberikan sebelum induksi 2-ME mampu memperkuat respon imun (immunostimulasi) ?, (3) apakah ekstrak jamur *Coriolus versicolor* yang diberikan sesudah induksi 2-ME mampu mengembalikan fungsi respon imun (immunorestorasi) ?, dan (4) apakah ekstrak jamur *Coriolus versicolor* yang diberikan sebelum dan sesudah induksi 2-ME dapat memperkuat dan mengembalikan fungsi respon imun non-spesifik ?

Tujuan penelitian untuk mengetahui kemampuan dari ekstrak jamur *Coriolus versicolor* untuk mengembalikan atau memperbaiki dan memperkuat fungsi respon imun non-spesifik yang merupakan pertahanan pertama tubuh kearah normal.

Penelitian menggunakan tikus putih (*Rattus norvegicus* L. strain Wistar) betina dewasa, umur 3 bulan, berat badan 130-140 g, sebanyak 30 ekor. Perlakuan dibagi 5 kelompok. Kelompok I sebagai kontrol, tanpa pemberian ekstrak jamur dan induksi 2-ME. Kelompok II, induksi 2-ME saja. Kelompok III, pemberian ekstrak jamur sebelum induksi 2-ME. Kelompok IV, pemberian ekstrak jamur sesudah induksi 2-ME. Kelompok V, pemberian ekstrak jamur sebelum dan sesudah induksi 2-ME. Dosis 2-ME adalah 11 mmol/kg bb yang diberikan sebanyak 3 kali dengan selang waktu 7 hari melalui intraperitoneal. Ekstrak jamur diberikan selama 7 hari berturut-turut dengan konsentrasi 300 mg/kg/bb melalui *gavage*. Pengamatan dilakukan setelah 4 hari dari akhir perlakuan. Parameter pengamatan adalah jumlah total leukosit, jumlah makrofag, dan berat limfa. Semua data dianalisis dengan Anava satu jalur dan jika ada perbedaan yang nyata dilanjutkan dengan uji LSD pada $\alpha = 5\%$.

Hasil penelitian menunjukkan bahwa ada perbedaan yang nyata antar perlakuan baik untuk jumlah total leukosit, jumlah makrofag, dan berat limfa. Rerata jumlah total leukosit relatif sama antara kontrol ($5.253,33 \pm 789,6$ sel/mm³) dengan perlakuan induksi 2-ME ($3.375,00 \pm 1.246,3$ sel/mm³), tetapi rerata tersebut meningkat dengan pemberian ekstrak jamur baik sebelum ($8.555,55 \pm 2.457,2$ sel/mm³), sesudah ($9.199,98 \pm 2.304,3$ sel/mm³) serta sebelum dan sesudah induksi 2-ME ($8.078,44 \pm 294,5$ sel/mm³). Rerata jumlah makrofag antara kontrol ($658,33 \pm 55,3$ sel/mm³) dengan induksi 2-ME ($1.395,83 \pm 171,8$ sel/mm³) relatif sama, tetapi meningkat dengan pemberian ekstrak jamur sebelum induksi 2-ME ($3.266,67 \pm 839,4$ sel/mm³) dan semakin meningkat lagi dengan pemberian ekstrak jamur sesudah ($4.350,00 \pm 1.013,3$ sel/mm³) serta sebelum dan sesudah induksi 2-ME ($4.270,83 \pm 894,6$ sel/mm³). Berdasarkan data berat limfa menunjukkan bahwa rerata berat limfa akibat induksi 2-ME ($241,92 \pm 38,1$ mg), pemberian ekstrak jamur sebelum induksi 2-ME ($250,57 \pm 20,5$ mg), dan pemberian ekstrak jamur sebelum dan sesudah induksi 2-ME ($276,35 \pm 24,5$ mg) menurun dibandingkan kontrol ($387,15 \pm 66,3$ mg). Rerata berat limfa meningkat pada pemberian ekstrak jamur sesudah induksi 2-ME ($319,28 \pm 25,5$ mg) walaupun peningkatan tersebut masih lebih rendah dibandingkan kontrol.

Kesimpulan penelitian adalah induksi 2-ME menyebabkan penurunan berat limfa. Ekstrak jamur *Coriolus versicolor* yang diberikan sebelum induksi 2-ME mampu memperkuat respon imun (imunostimulasi) terutama peningkatan jumlah total leukosit dan jumlah makrofag. Ekstrak jamur *Coriolus versicolor* yang diberikan sesudah induksi 2-ME mampu mengembalikan fungsi respon imun (imunorestorasi) untuk semua parameter. Ekstrak jamur *Coriolus versicolor* yang diberikan sebelum dan sesudah induksi 2-ME dapat memperkuat dan mengembalikan fungsi respon imun non-spesifik terutama jumlah total leukosit dan jumlah makrofag. Pemberian ekstrak jamur sesudah induksi 2-ME relatif lebih menguntungkan sebagai imunorestorasi.

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SUMMARY

EXPLOITING OF EXTRACT OF MUSHROOM OF *Coriolus versicolor* AS
 IMMUNOMODULATOR OF NON-SPECIFIC IMMUNE RESPONSE AT RAT
 BECAUSE EFFECT OF 2-METHOXYETHANOL INDUCTION
 (Sri Puji Astuti Wahyuningsih, 2006, 32 pages)

2-Methoxyethanol (2-ME) known to have the character of the immunotoxic and immunosuppressive to system of body defender. While, extract of mushroom of *Coriolus versicolor* anticipated to have the character of as immunomodulator and as biological response modifier capable to cure the degradation of the non-specific immune response.

Problems at research were (1) what 2-ME induction caused the non-specific immune response function degradation at rat?, (2) what extracts of mushroom of *Coriolus versicolor* were giving before 2-ME induction able to strengthen the response immune (immunostimulant)?, (3) what extracts of mushroom of *Coriolus versicolor* were giving after 2-ME induction able to bring back the immune response function (immunorestitution)?, and (4) what extracts of mushroom of *Coriolus versicolor* were giving before and after 2-ME induction can strengthen and bring back the function of non-specific immune response.

Research target to know the ability from extracts of mushroom of *Coriolus versicolor* to bring back or repaired and strengthen the function of non-specific immune response representing first defender of body toward normal.

Animal try the *Rattus norvegicus* L. female strain Wistar, age 3 month, weight 130-140 g. She 30 tail divided the 5 group. Group I: control (without gift of extract of mushroom and 2-ME induction). Group II: just 2-ME induction. Group III: gift of mushroom extract before 2-ME induction. Group IV: gift of mushroom extract after 2-ME induction. Group V: gift of mushroom extract before and after 2-ME induction. Dose of 2-ME was 11 mmole/heavy kilogram of body, given by 3 times through intraperitoneal with a time gap 7 day. Concentration of mushroom extract was 300 mg/ heavy kilogram of body given during 7 day successively through gavages. The perception done after 4 day from final of treatment. The perception parameters were the total leucocytes count, macrophages count, and heavy of lymph. All data

analyzed by ANOVA one band and if there a marked difference continued with the test LSD at = 5%.

Research result indicated that the average of total leucocytes count were relative of equal between control ($5.253,33 \pm 789,6$ cell / mm³) with the treatment 2-ME induction ($3.375,00 \pm 1.246,3$ cell / mm³), but the average mount with the good mushroom extract gift before ($8.555,55 \pm 2.457,2$ cell / mm³), after ($9.199,98 \pm 2.304,3$ cell / mm³) and also before and after 2-ME induction ($8.078,44 \pm 294,5$ cell / mm³). Average the macrophages count between control ($658,33 \pm 55,3$ cell / mm³) with the 2-ME induction ($1.395,83 \pm 171,8$ cell / mm³) were relative of equal, but mounting with the gift of mushroom extract before 2-ME induction ($3.266,67 \pm 839,4$ cell / mm³) and progressively mount again with the gift of mushroom extract after ($4.350,00 \pm 1.013,3$ cell / mm³) and also before and hereafter induce 2-ME ($4.270,83 \pm 894,6$ cell / mm³). Pursuant to heavy data of lymph indicated that the heavy average of because the effect of 2-ME induction ($241,92 \pm 38,1$ mg), gift of mushroom extract before 2-ME induction ($250,57 \pm 20,5$ mg), and gift of mushroom extract before and after 2-ME induction ($276,35 \pm 24,5$ mg) compared to downhill of control ($387,15 \pm 66,3$ mg). Heavy averages of lymph mount at gift of mushroom extract after 2-ME induction ($319,28 \pm 25,5$ mg) although the improvement still be compared to lower of control.

Research conclusions were the 2-ME induction caused heavy degradation of lymph. Extracts of Mushroom of *Coriolus versicolor* were giving before 2-ME induction able to strengthen the immune response especially the improvement of total leucocytes count and the macrophages count. Extracts of Mushroom of *Coriolus versicolor* were giving after 2-ME induction able to bring back the immune response function for all parameter. Extracts of Mushroom of *Coriolus versicolor* were giving before and after 2-ME induction can strengthen and bring back the immune response function of non-specific especially the total leucocytes count and the macrophages count. Gift of mushroom extracts after 2-ME induction relative more beneficial as immunorestitution.

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