Immunomodulatory Potentials of Etlingera rubroloba A.D. Poulsen Against CD4 Levels in Wistar Male Rats

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Background: Etlingera rubroloba A.D. Poulsen is a plant that is endemic to Southeast Sulawesi and has a taxonomic affinity with Etlingera elatior (Jack) R. M-Smith. The fruit of the plant E. elatior (Jack) R. M. Smith is reported to contain active compounds as immunomodulatory agents by increasing the phagocytic activity of macrophage cells. Based on the taxonomic proximity of plants, it is expected that Etlingera rubroloba A.D. Poulsen contains active compounds that would give the same effect as E. elatior (Jack) R. M-Smith. This study aims to determine the immunomodulatory potential of the fruit ethanol extract of E. rubroloba A.D. Poulsen by determination of CD4 levels.

Research Method: E. rubroloba fruit samples A.D. Poulsen was obtained in Punggalkulu Village, Konawe Selatan District, Southeast Sulawesi Province. Dried simplicia was pollinated 3.3 kg of E. rubroloba fruit samples A.D. Poulsen was extracted by maceration with 96% ethanol solvent by 3 x 24 hours, then phytochemical screening was carried out with specific reagents. Immunomodulator testing on twenty-four male wistar rats divided into six treatment groups, namely normal groups, negative group (Na-CMC 0.5%), positive group (commercial meniran extract, 0.135 mg / kgbb), dose group I (200), dose group II (300), dose group III (400) mg / kgBW. Treatment 3 mL / per head every day orally for seven days. On the eighth day, all rats (except the normal group) were infected with Staphylococcus aureus as much as 0.5 mL intra-peritoneal. Determination of CD4 levels using the sandwich ELISA method and data were analyzed by one way ANOVA and Tukey’s post hoc test.

Result: The results of the sample phytochemical screening test are shown in Table 1 and the average CD4 level of Wistar rats in the normal group is 252.50 ng / mL, negative group 75.62 ng / mL, positive group 167.18 ng / mL, dose group I 204.53 ng / mL, dose II 227.49 ng / mL and dose III 175.62 ng / mL (Figure 1). Based on the results of Tukey’s post hoc statistical test, it was shown that the three groups had doses of E. rubroloba A.D. fruit extract. Poulsen had a significant difference with the negative and positive groups on CD4 levels (P <0.05).

Table 1. Result of screening test for secondary metabolites of ethanol extract of E.rubroloba fruit

<table>
<thead>
<tr>
<th>Compound Test</th>
<th>Reaction Solutions</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flavanoid</td>
<td>Mg + HCl concentrate</td>
<td>Positive</td>
</tr>
<tr>
<td>Alkaloid</td>
<td>Dragendorf</td>
<td>Positive</td>
</tr>
<tr>
<td>saponin</td>
<td>water + HCl 2N</td>
<td>Positive</td>
</tr>
<tr>
<td>Tanin</td>
<td>FeCl₃</td>
<td>Positive</td>
</tr>
<tr>
<td>Terpenoid</td>
<td>Liebermann Buchard</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Conclusion: The ethanol extract of the fruit of E. rubroloba A.D. Poulsen has the potential as an immunomodulator against CD4 levels in wistar rats.

References