

Potensi Aktivitas Biologis Madu Acacia crassicarpa sebagai Madu Nasional Indonesia (Studi Aktivitas Imunomodulasi Madu Acacia crassicarpa) = Biological Activity Potential of Acacia crassicarpa Honey as Indonesian National Honey (Immunomodulatory Activity Study of Acacia crassicarpa Honey)

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Abstrak

Madu dikenal dengan aktivitas biologisnya yang beragam, salah satunya adalah sebagai imunomodulator, yakni agen yang dapat mempengaruhi respon sistem imun. Di Indonesia, salah satu jenis madu yang sudah mulai banyak diproduksi adalah madu dari nektar Acacia crassicarpa. Penelitian ini dilakukan dengan uji proliferasi sel limfosit dengan uji MTS untuk mengetahui efek penambahan madu dalam berbagai variasi konsentrasi terhadap respon sel imun, identifikasi senyawa polifenol menggunakan Liquid Chromatography Mass Spectrometry (LCMS/MS), serta pengukuran kadar senyawa fenolik total dimana senyawa polifenol yang terkandung dalam madu turut diduga memiliki efek imunomodulasi bagi tubuh. Selain itu dilakukan uji fisikokimia berdasarkan standar SNI 8664:2018. Hasil pengujian menunjukkan bahwa madu Acacia crassicarpa dapat meningkatkan viabilitas sel limfosit yang terinduksi LPS hingga mencapai 90% pada variasi konsentrasi madu Acacia crassicarpa terbesar yakni 160 g/ml. Hal ini didukung dengan temuan senyawa-senyawa fenolik dan metabolit dalam madu yang lebih banyak dibandingkan madu randu sehingga diduga dapat mempengaruhi aktivitas imunomodulasi tersebut. Madu Acacia crassicarpa asal Tanjung Jabung Barat, Jambi menunjukkan kandungan fenolik total tertinggi sebesar 494,03 ppm, yang berpotensi memiliki aktivitas biologis lebih tinggi dibandingkan madu serupa asal daerah lain. Hasil pengujian fisikokimia menunjukkan bahwa madu Acacia crassicarpa memiliki kualitas yang baik dan aman dikonsumsi, namun dengan catatan pada beberapa parameter dimana hasil uji melebihi standar yang ditetapkan yakni kadar air, kadar gula pereduksi, kadar sukrosa, dan keasaman.

.....Honey is well-known for its various biological activities, one of which as an immunomodulator, which are substances that can affect the response of the immune system. In Indonesia, one type of honey that is widely cultivated recently is the Acacia crassicarpa honey. This research was conducted by testing lymphocyte cell proliferation with MTS assay to determine the effect of various concentrations on immune cell response, identification of polyphenolic compounds using Liquid Chromatography Mass Spectrometry (LCMS/MS), as well as measurement of total phenolic content in which polyphenolic compounds in honey are suggested to have immunomodulation effect on human body. In addition, physicochemical tests were conducted based on the SNI 8664:2018 standard. The test results showed that Acacia crassicarpa honey able to increase the cell viability of LPS-induced lymphocytes up to 90% which is shown by honey concentration of 160 g/ml. This result is supported by the findings of more phenolic and metabolic compounds compared to randu honey, therefore suggests these compounds may affect the immunomodulating activity. Acacia crassicarpa honey from West Tanjung Jabung, Jambi showed the highest total phenolic content of 494.03 ppm, and may have higher biological activity potential compared to similar honey from other regions. The results of physicochemical test showed that Acacia crassicarpa honey has good quality and safe for consumption, but with a note on several parameters where the test results exceeded the established

standards; with those parameters being water content, reducing sugar content, sucrose content, and acidity.