Polyphenols extracted from the Green Tea (Camellia sinensis) augments the protective immune responses in mice challanged with Salmonella typhimurium

---

Abstrak

Teh hijau diolah dari daun teh yang tidak difermentasi. Berbagai aktivitas biologis teh hijau telah dilaporkan. Bentuk infus dan kandungan polifenolnya telah diketahui mempunyai efek antimutagenik, antibakterial, menurunkan kadar kolesterol, antioksidan, dan mitogen limfosit B. Penelitian membuktikan bahwa polifenol teh hijau dapat meningkatkan produksi IL-12. Infeksi yang disebabkan oleh kuman salmonella spp sampai saat ini masih merupakan masalah kesehatan di berbagai negara di seluruh dunia. Peran imunitas tubuh, diantaranya imunitas seluler yang diperantarai sel T helper sangat diperlukan untuk mengatasi infeksi akibat kuman ini. Berbagai penelitian menunjukkan bahwa IL-12 berperan penting dalam mekanisme imunitas seluler. Penelitian ini bertujuan untuk mengetahui efek polifenol terhadap respon imun seluler mencit selama infeksi Salmonella typhimurium. Subjek penelitian adalah mencit Balb/C betina berumur 6-8 minggu yang dibagi menjadi 3 kelompok. Kelompok pertama mendapat polifenol dosis 10 mg/hari, kelompok kedua 5 mg/hari selama 1 bulan, dan kelompok ketiga tidak mendapat polifenol. Pada hari ke-31 semua kelompok diinfeksi dengan Salmonella typhimurium 108 CFU per oral. Pada hari 0, 3, 5, dan 7 setelah infeksi masing-masing kelompok dibunuh 3 ekor mencit untuk diekstraksi splenosit dan sel makrofag peritonealnya. Kadar IFN-g supernatan kultur splenosit dan aktivitas fagosit oleh makrofag peritoneum diperiksa pada hari tersebut. Kadar IFN-g pada supernatan kultur splenosit meningkat selama infeksi pada semua kelompok, tetapi kadarnya pada kelompok yang mendapat polifenol lebih tinggi daripada kelompok kontrol. Persentase aktivitas fagositosis makrofag peritoneal juga lebih tinggi pada kelompok yang mendapat polifenol daripada kelompok kontrol. Peningkatan aktivitas fagositosis makrofag ini berkorelasi positif dengan kadar IFN-g pada supernatan kultur splenosit. (Med J Indones 2004; 13: 1-7) <hr><i>Green tea is an aqueous infusion of dried unfermented leaves of Camellia sinensis. Numerous biological activities of green tea have been reported. The aqueous infusion and its polyphenolic substance are known for their activity as an antimutagenic, antibacterial, hypocholesterolemic, antioxidant, and mutagenic of B lymphocyte. Studies have demonstrated that green tea polyphenols increase IL-12 production. Salmonella spp infection is an important public health problem in many countries. Cell-mediated immunity (CMI), especially T-cell help is important for protection against this infection. Recent evidence indicates that IL-12 is one such factor that plays a crucial role in the development of CMI. These studies were carired out to investigate the effect of green tea polyphenols to the immune cellulare in mice responses of mice during Salmonella typhimurium infection. The subject consisted of 36 female mice (Balb/C), 6-8 weeks old, divided into 3 groups. The first group was given 10 mg polyphenols/mouse, the second group was given 5 mg polyphenols/mouse, and the third group as the control. In day 31, all mice were infected with 108 CFU Salmonella typhimurium orally. On day 0, 3, 5, and 7 postinfection, 3 mice from each groups were sacrificed, the splenocytes were extracted and cultured to measure the level of IFN-g in the supernatan and. The peritoneal macrophages were also extracted and cultured to measure the phagocytic activity. The level of IFN-g in splenocyte culture supernatant increased during infection in all

groups, but the level of the experimental groups were higher than in control group. The percentage of phagocytic activity of peritoneal macrophages were higher in the experimental groups than in the control group. The increase of the phagocytic activities were seen corelate with the level of IFN-g supernatan splenocyte culture. (Med J Indones 2004; 13: 1-7)</i>