No. 2028

Anti-Allergic Effects of Food Constituents

Itsuro Kazama

Miyagi University, School of Nursing

Summary

Caffeine and catechin, contained in coffee and tea, are commonly consumed substances worldwide. Studies revealed their health promoting functions, such as anti-oxidant, anti-cancer and anti-bacterial properties. Additionally, studies also revealed their roles in ameliorating the symptoms of allergic disorders, indicating their anti-allergic properties. In the present study, using the differential-interference contrast (DIC) microscopy, we examined the effects of caffeine and catechin on the degranulation from rat peritoneal mast cells. Both caffeine and catechin dose-dependently decreased the numbers of degranulating mast cells. At concentrations equal to or higher than 25 mM, caffeine and catechin markedly suppressed the numbers of degranulating mast cells. In contrast, at relatively lower concentrations, both substances did not significantly affect the numbers of degranulating mast cells. However, surprisingly enough, low concentrations of catechin (1, 2.5 mM) synergistically enhanced the suppressive effect of 10 mM caffeine on mast cell degranulation. These results provided direct evidence for the first time that caffeine and catechin dose-dependently inhibited the process of exocytosis. At relatively lower concentrations, caffeine or catechin alone did not stabilize mast cells. However, low concentrations of catechin synergistically potentiated the mast cell-stabilizing property of caffeine.