Abstract
A group of flavonoids isolated from medicinal plants and which are selective inhibitors of lipoxygenase activity in vitro: sideritoflavone, cirsiliol, hypolaetin-8-O-beta-D-glucoside, hypolaetin, oroxindin, quercetagetin-7-O-beta-D-glucoside, gossypin, hibifolin and gossypetin, besides leucocyanidol, have been studied for their effects on acute responses induced by carrageenin in mice. The oral administration of flavonoids to mice inhibited dose-dependently the development of paw oedema at 1, 3 and 5 h after carrageenin injection. A similar administration of flavonoids induced a dose-dependent inhibition of leukocyte accumulation in inflammatory exudates following intraperitoneal injection of carrageenin into mice. Some of the flavonoids exhibited a potency against leukocyte infiltration similar to that seen for inhibition of carrageenin oedema at 3 h of induction. In agreement with data reported in rats, indomethacin was much more effective on inhibition of prostaglandin E2 (PGE2) formation than on leukocyte infiltration in mice. The selectivity of flavonoids towards lipoxygenase is not retained in vivo since they behave as dual inhibitors of PGE2 and leukotriene B4 (LTB4) formation in peritoneal exudates. Our data support the inhibition of arachidonic acid metabolism as one of the mechanisms by which flavonoids exert their anti-inflammatory effects.