2. Abstract

Chemotherapy is known to adversely affect the gastrointestinal tract, leading to mucositis, diarrhoea and weight loss. The mechanism(s) associated with chemotherapy induced mucositis which alters the cytokine level remains obscure. Current study investigated the anti-mucositis effects of *Spondias pinnata* and whey preparation on etoposide induced mucositis in the rat duodenum. The study parameters include TUNNEL assay to assess apoptosis, cytokines such as TNF-α and IL-6 and also GSH, MPO, COX, nitric oxide, sucrase and sodium potassium ATPase activity in rat duodenal homogenate. Furthermore, histological studies support the severity of duodenal damage. Etoposide decreased the food, water intake and body weight due to disturbance of GI mucosal barrier. The study results showed a significant increase in the activity of COX, MPO, levels of NO and decrease in glutathione levels, sucrase and sodium potassium ATPase activity in etoposide group. Etoposide also triggered a significant increase in extent of apoptosis and TNF-α and IL-6 levels in rat duodenum. Administration of *Spondias pinnata* or whey preparation, post chemotherapy as well as both pre and post chemotherapy have reversed the etoposide induced mucositis, oxidative damage and increased apoptosis as well as levels of inflammatory cytokines. These results prove the anti-mucositis effect of *Spondias pinnata* and whey preparation against etoposide induced mucositis.

*Key words:* Etoposide; *Spondias pinnata*; whey preparation; mucositis; TUNNEL assay