

Post-chemotherapy Intestinal Mucositis and Bioactive Potential of Natural Compounds †

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Abstract: Mucositis is a serious gastrointestinal tract disorder that results from cancer chemotherapy. We investigated first the consequences of chemotherapy-based therapy on goblet cells (GCs) and mucus production on colonic mucosa, immediately and after a short time of drug administration to onco-hematological patients and expression of tight junction proteins in epithelial cells, by histopathological analysis. We showed that GCs number decreased slightly at 48 hours, while mucous secretion became mixed (with a few neutral) after three weeks. The MUC2 and MUC4, alongside Claudin-1 and ZO-1 tight junction proteins, showed a decreased immunoexpression at 48 hours after the drug administration compared to control and partially restored three weeks after the cessation. In a second experiment, we investigated the protective effects of silk fibroin-based nanoparticles against 5-FU-induced GI mucositis in mice. Our histopathological and electron microscopy analysis showed that silk fibroin nanoparticles efficiently protect against drug-induced GI mucositis in a mouse model.

Keywords: chemotherapy; intestinal mucositis; silk fibroin.

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Conflicts of Interest

The authors declare no conflict of interest.