

inhibitory action of steviol was associated with the reduction of mucosal ATP content in intestinal absorptive cells.

The inhibition of NADH cytochrome *c* reductase activity by steviol (2 mM) was detected with the degree of 30.43% and cytochrome oxidase with the degree of 28.22%. The inhibitory effect of steviol on glucose uptake across brush-border membrane was not found.

The effect of steviol on morphological changes of jejunal mucosa was also investigated. The shortening of jejunal villi and undulating epithelial lining were remarkably appeared. The lacteal of villi core are dilated. The crypts and villi epithelial cells are degenerated and then appeared like large round vacuole.

The inhibitory effect of stevioside on intestinal glucose absorption was found in hamsters given with stevioside at the dose of 2.5 g/kg BW/day for 12 weeks. No inhibition was observed in hamsters given with stevioside at the doses of 0.5 and 1.0 g/kg BW/day with the same period. The mucosal $\text{Na}^+ - \text{K}^+ - \text{ATPase}$ activity was reduced in hamsters given with stevioside 2.5 g/kg BW/day for 12 weeks by 23.72%. The reduction of intestinal mucosal ATP content was also found in this dose of stevioside and the percent inhibition was 20.65%. Additionally, treatment of stevioside at the doses of 1.0 and 2.5 g/kg BW/day caused an increase in sucrase activity of hamsters jejunum with statistically significant. It was noted that stevioside at the doses of 1.0 and 2.5 g/kg

BW/day for 12 weeks caused the slightly shortening villi and undulating epithelial lining.

In conclusion, the present study show that only steviol had an inhibitory effect on intestinal glucose absorption in vitro. Such an inhibition is partly due to the reduction of intestinal mucosal ATP content. And the reduction in mucosal ATP content is a consequence of the reduction of intestinal mitochondrial respiratory enzymes activities and the morphological changes of intestinal absorptive cells. In vivo studies, the inhibition of glucose absorption by subchronic feeding of stevioside is caused by the inhibition of intestinal mucosal $\text{Na}^+ - \text{K}^+ - \text{ATPa}$ se activity, the reduction of mucosal ATP content and the changes in morphology of intestinal absorptive cells.