

Insulinotropic activity of *Tinospora crispa* extract: effect on β -cell Ca^{2+} handling

ABSTRACT

The mechanism of insulinotropic action of *Tinospora crispa* was investigated in vitro using an insulin-secreting clonal β -cell line, HIT-T15. The aqueous extract sensitizes the β -cell to extracellular Ca^{2+} and promotes intracellular Ca^{2+} accumulation which in turn causes increased insulin release. The increase in cytosolic Ca^{2+} concentration is due to stimulation of Ca^{2+} uptake from the extracellular medium and inhibition of Ca^{2+} efflux from the cytosol. That the mechanism of insulinotropic action of *T. crispa* is physiological suggests that the insulin secretagogue/s present in the extract could indeed be a potential source of a specific oral hypoglycaemic agent for the treatment of non-insulin-dependent diabetes mellitus.

Keyword: β -cell; Ca^{2+} ; Diabetes mellitus; Insulin secretion; Insulinotropic; *Tinospora crispa*