108

Extracts from Stevia rebaudiana is a potent anti-rotavirus inhibitor in vitro and in vivo K. Takahashi, S.Mori, N. Sato and S.Shigeta Fukushima Medical University, Fukushima-shi, Japan, JBB Stevia Research Institute.

Anti-human rotavirus (RV) activity of extracts from Stevia rebaudiana (SE) was examined by MTT assay. SE inhibited the replication of Wa strain (type 1) of RV in MA104 cells at EC_{50} of x220 dilution of the original SE solution with CC_{50} of x105 dilution (SI=2). Exposure of SE to HCl pH2.0 for 30 min exibited no loss of anti-RV activity. Time of addition experiments revealed that SE inhibited the adsorption of RV to MA104 cells. Furthermore, SE specifically inhibited the binding of anti-VP7 monoclonal antibody (MoAb) (11T-1) but not that of anti-VP4 MoAb to RV-infected MA104 cells, suggesting that the SE might inhibit the entry of RV to MA104 cells by binding to the VP7 outer capsid protein. Oral administration of SE (10 μ l) to suckling mice at the time of oral RV inoculation ($1x10^7$pfu) shortened the period of diarrhea. Purification of the inhibitory materials was performed by Sephacryl S 200 and DE 52 ion exchange column chromatography. The inhibitory materials revealed heterogeneous. The pure highest active fraction was suggested to be a polymer of uronic acid with molecular weight of 9800. It contains Ser and Ala as amino acid, but not sulfer residue, amino- and neutral carbohydrate. Since intestinal uptake of SE is very low (0.5%) and there is no acute toxicity of SE in mice (up to 1ml of oral administration) and humans, furthermore, SE is commercially available as a health food in Japan, SE could be the candidate for the treatment of RV infection.