

***PROCYANIDIN FROM BLACK BEAN (*Phaseolus vulgaris*)
INHIBITS GLUCOSE AND ALANINE TRANSPORT IN RAT ILEUM***

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Procyanidin, a condensed tannin from black beans, inhibits many digestive enzymes. Experiments performed here examined the effect of procyanidin on glucose and alanine-induced changes of electrical parameters in rat ileal sheets. Glucose uptake in everted sacs was measured and kinetic parameters determined. Procyanidin inhibited the glucose-induced increase in short-circuit current in a dose-dependent manner with almost complete inhibition at a concentration of 2 mg/ml procyanidin. Glucose-induced changes in conductance and open-circuit voltage were inhibited. Alanine-induced changes in electrical parameters were also inhibited by incubation with procyanidin. Incubation of everted sacs in 1 mg/ml procyanidin decreased the V_m of glucose uptake while the K_m remained unchanged indicating noncompetitive inhibition kinetics. Procyanidin probably interacts with both protein and lipid components of the membrane disabling glucose and alanine active transport.

BLACK BEAN PROCYANIDIN AND ELECTROLYTE TRANSPORT IN THE RAT ILEUM

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Experiments were performed to determine the effect of procyanidin on electrolyte transport. Procyanidin, a condensed tannin extracted from black beans, was added to the mucosal side of unstripped rat ileal sheets mounted in Ussing chambers. Procyanidin caused a 100% increase in short-circuit current within 10 min after addition. Unidirectional fluxes of sodium from mucosa to serosa were significantly reduced. Transepithelial conductance and open-circuit voltage were significantly greater than control values within 10 min after procyanidin addition. Indomethacin, a prostaglandin synthesis inhibitor, did not affect procyanidin-induced changes in electrical parameters. Procyanidin has a secretory effect on the ileum which does not appear to be prostaglandin-mediated.