SHORT COMMUNICATIONS

Bromelainase activity of aloe extract

(Received 13 May 1972; accepted 8 August 1972)

Aloe (Aloe arborescens Mill v. Naturliche Berger) has been used as folkloric medicine for centuries, especially as an anti-inflammatory agent for the treatment of burns, Whitehead, clinical pharmacologist at the University of Chicago, has conducted extensive research on the therapeutic effects of aloe vera. He has found that aloe extract contains bromelainase activity.

The extract from fresh leaves of aloe was filtered through aMillipore membrane, and the solution containing the components with molecular weights higher than 10,000 were precipitated. The precipitated powder was dissolved in water to make a concentration of 30 mg of the aloe powder/ml. The solution was then treated with bromelainase from the Proteus Research Foundation, Osaka.

Bromelainase activity was estimated by biological assay on the guinea pig stomach as described by Takezato et al. [2]. Synthetic bromelainase (10 μg) in final concentration was injected through the stomach tube in 3 ml of 70% saline solution to the guinea pig. The stomach was removed 10 min after injection, and the juice was analyzed. The juice was analyzed for its proteolytic activity.

As shown in Fig. 1, incubation of bromelainase with aloe extract containing the components of aloe, resulted in higher activity than the aloe extract alone. The result suggests that aloe extract contains bromelainase activity. Aloe extract alone had no effect on the guinea pig stomach. However, the fraction of aloe extract containing substances of aloe, lower than 10,000 molecular weights of the aloe extract, resulted in decreased activity when compared to aloe extract alone.

The products formed from bromelainase incubation with aloe extract were analyzed by high voltage paper electrophoresis at pH 3.5 in pyridine-acetic acid buffer (11.09. by vol) at 2,000 volts for 30 min. The amino acid composition was analyzed by standard methods.

The results from bromelainase incubation with aloe extract were analyzed by high voltage paper electrophoresis at pH 3.5 in pyridine-acetic acid buffer (11.09. by vol) at 2,000 volts for 30 min. The amino acid composition was analyzed by standard methods.

REFERENCES