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DIURETIC EFFECTS OF PHYSALIS ANGULATA AND STAUROGYNE CONCINNULA

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ABSTRACT

The term diuretic was initially applied to the drugs that caused an increased excretion of urine. However, their therapeutical applications are not dependent on the excretion of water alone. The excretion of sodium is also important, for example, in the clinical treatment of edema[1].

For many years, both mercurial and thiazide diuretics exert their effects on electrolyte excretion by preventing the reabsorption of electrolyte from the kidney distal tubules. The mercurial diuretics are very potent but quite toxic and when thiazides are ingested, many patients become hypokalemia[1].

Therefore, other potent diuretics with less toxicity are still sought.

Physalis angulata (苦蘵) (PA) and *Staurogyne concinnula* (家蛇草) (SC) have been used in Taiwan as folk-medicines for the treatments of gout, edema and hypertension[2].

The water extract of PA and SC have been shown with diuretic activity. In the present study, the diuretic score[3] of PA (2 g/Kg P.O.) is 3.2 ± 0.7 in contrast to Hydroflumethiazide (5 mg/kg P.O.) 2.9 ± 0.5 (Table 1) and SC (5 g/kg P.O.) is 3.0 ± 0.6 in contrast to Hydroflumethiazide (5 mg/kg P.O.) 3.8 ± 2.4 (Table 2) respectively.

Table 1. Diuretic Activity of *Physalis angulata* (PA)

Treatment	Dose ng/kg P.O.	No. of rats	Na^+ (μeg/100 g rat) excretion	Diuretic score
Control	Saline	66	143 ± 27	1.0
Hydroflumethiazide	5	66	421 ± 66	2.9 ± 0.5
PA	1000	30	334 ± 78	2.3 ± 0.5*
PA	2000	60	471 ± 118	3.2 ± 0.7*

Table 2. Diuretic Activity of *Staurogyne concinnula* (SC)

Treatment	Dose mg/kg P.O.	No. of rats	Na^+ (μeg/100 g rat) excretion	Diuretic score
Control	Saline	18	131 ± 28	1.0
Hydroflumethiazide	5	18	487 ± 77	3.8 ± 1.0
SC	5000	18	389 ± 74	3.0 ± 0.6*

Data are expressed by mean±S.E.
*A diuretic score >2 is considered a significant effect.

(Diuretic score = $\frac{\mu\text{eq Na excreted/6 hrs/100 g rats-Test cpds}}{\mu\text{eq Na excreted/6 hrs/100 g rats-Control}}$

A diuretic score > 2 representing twice the saluresis noted in control animals tested simultaneously is considered a significant effect.)

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