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使君子中之驅蟲質素

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摘要：驅蟲劑如使君子、海仁草、山道年等，應用甚廣．今使君子已被採入新中華藥典，產我國西南福建等省，味甘，毒性微，頗合小兒驅蛔蟲之用．使君子有殺蟲及驅蟲能力，已無疑義，惟其有效質素爲何，雖經中外學者多年研究，尚無結論．今作者從使君子中提出約千分之一吡啶 (pyridine) 及其同類物，尚未經人所發現者．吡啶類有殺蟲及驅蟲能力，爲藥理學家所公認，使君子之有效質素即係此物，亦屬可能．

ANTHELMINTIC CONSTITUENTS OF SHIH-CHUN-TZE, QUISQUALIS CHINENSIS *

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The Chinese drug, Shih-chun-tze, botanically identified as Quisqualis Chinensis, or Quisqualis Indica, I [1] has long enjoyed a high repute as an anthelmintic. It is believed that eating 4 or 5 roasted seeds before breakfast is the usual method of administering the drug to Chinese children, and this seldom fails to expel intestinal worms. Compared with santonin and Digenia simplex Wulf, 2 popular vermifuges in general use, Quisqualis fruits appear to be more favourable for children owing to its low toxicity and little by-effects produced[2]. Chemically, it has been investigated by Chu-tze[3], Yu[4] and many others. More recently, Lieu[5] reported the isolation from the old fruits of a good number of fatty acids, glucose, a sterol and potassium salts and pointed out that its alcoholic extracts showed the positive reaction with alkaloidal reagents. Chen and Li[6] however, attributed its anthelmintic action to the presence of a potassium salt of an unknown organic compound, no alkaloid being found present. The present work reports the isolation of pyridine from Shih-chun-tze which may most probably

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be the anthelmintic principle. Being antiseptic and germicidal, pyridine and pyridine bases will no doubt exert some destructive action to intestinal worms. It is interesting to note that arecoline, a well known vermifuge, is also a pyridine derivative.

Experimental

300 g Quisqualis seeds (使君子), bought from Shanghai drug store, were coarsely powdered and soaked in 800 cc of tap water containing 1% of acetic acid for 3 days at room temperature (30°C). Filtered and washed thoroughly with water, the filtrate measuring about 800 cc, was cooled in an ice chest for a day in order to separate out much dissolved fatty matter and decanted the top layer. The clear acid solution so obtained was made strongly alkaline with K_2CO_3 and extracted the basic substances present several times with amyl alcohol. After being freed from much emulsion by freezing and dried with anhydrous Na_2SO_4, the amyl alcoholic solution, was washed 3 times with dilute HCl. The acid solution resulted which contained much amyl alcohol, was washed repeatedly with $CHCl_3$, made alkaline with K_2CO_3 and extracted with ether. The ethereal solution, when dried and distilled, left behind about 0.3 cc of an oily base smelling strongly of pyridine which, when treated with sufficient amount of $AuCl_3$ solution in the presence of dilute HCl, formed well crystallised prisms with no definite melting point. Recrystallised from dilute HCl and analysed, its analytical data corresponded to that of pyridine.

Analysis—Calcd. for $C_5H_5N \cdot HCl \cdot AuCl_3$: C, 14.3; H, 1.4; Au, 47.0
Found: C, 14.4, 14.5; H, 1.4, 1.7; Au, 47.0, 46.9

It was identical in all respects to the aurichloride prepared with pure pyridine.

Summary

From the Chinese drug, Shih-chun-tze, Quisqualis Chinensis, there has been isolated about 0.1% of pyridine bases from which pyridine itself separates out in the form of a well crystallised aurichloride.

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