

**Key Words**

Rutaecarpine  
Hypotension  
Vasodilation  
Thrombosis

**INTRODUCTION**

Chinese herbs have been widely used as important remedies in Oriental medicine. In recent decades, many biologically active constituents have been isolated and their pharmacological actions investigated.

**NTJM**

Tel: 886-2-27361661 ext. 749  
Fax: 886-2-23772150

**Review**

NTJM

Received: November 1, 1999

Accepted: December 8, 1999

**Cardiovascular Pharmacology of  
Rutaecarpine, a Bioactive Alkaloid  
Purified from the Chinese Herb *Evodia  
rutaecarpa***

**ABSTRACT**

*Evodia rutaecarpa* (Chinese name: Wu-Chu-Yu) is a well-known traditional Chinese medicine and has been long used in Chinese medical practice. An intravenous bolus injection of rutaecarpine in anesthetized S. D. rats produced a hypotensive effect. The maximum hypotension induced by rutaecarpine (100 µg/kg) were  $25 \pm 7$  mmHg. Furthermore, rutaecarpine has antianoxic action in the KCN-induced anoxia model. Rutaecarpine and aspirin significantly prolonged the occlusion times induced by fluorescein sodium in venous. On a molar basis, rutaecarpine was about 2-fold more potent than aspirin at inhibiting fluorescein sodium-induced platelet plug formation in microvessels of mice. In addition, rutaecarpine caused concentration-dependent relaxation of isolated rat mesenteric arterial segments, which were precontracted with phenylephrine. On the other hand, in human platelet-rich plasma, rutaecarpine inhibited aggregation stimulated by a variety of agonists (i.e., collagen, ADP, epinephrine, and arachidonic acid). In the *in vitro* situations, rutaecarpine on isolated rat uterus contraction was blocked by methysergide, indicating rutaecarpine can be used for the treatment of female reproductive disorders (such as postpartum hemorrhage). Rutaecarpine is a pure chemical isolated from *Evodia rutaecarpa* and this phytochemical has been shown in this presentation to have hypotensive and antithrombotic effects. This article revealed some interesting unique pharmacological properties, which may explain its vascular and platelet effects.

*Evodia rutaecarpa* (Chinese name: Wu-Chu-Yu) is a well-known traditional Chinese medicine and has been long used in Chinese medical practice. The dried unripened fruit of *Evodia rutaecarpa* has been used as a remedy for gastrointestinal disorders (abdominal pain, dysentery), headache, amenorrhea, and postpartum

Dr. Joan-Rong Sheu  
Graduate Institute of Medical Sciences, Taipei Medical College,  
250 Wu Hsing Street, Taipei 110-31, Taiwan, R.O.C.  
Tel: 886-2-27390450, Fax: 886-2-27390450  
E-mail: sheujr@tmc.edu.tw