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Abstract

**STUDY ON ANTHRAQUINONES FROM MORINDA
OFFICINALIS**

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Morinda officinalis (family Rubiaceae), is a traditional Chinese tonic herb mainly distributed in Guangdong, Guangxi and Fujian provinces in China. It has been extensively used for tonifying kidney, dispelling wetness, muscular and skeletal atrophy in China for about two thousand years. It mainly treat lack of libido, impotence, infertility, painful knees and legs, arthritis, fatigue, musculoskeletal atrophy, anti-rheumatic. The modern pharmacology research shown it also possesses anti-bacterial, antiosteoporotic activity.

Although the chemical constituent of *Morinda officinalis* had been studied by some researchers ten years ago, in order to analyze and explore its constituents further, and hope it could provide good guarantee to quality control, we continue to concentrate on its chemical constituent. This thesis main covers chemical constituent separation process and seven anthraquinone quantitative analysis.

The thesis contained four chapters:

Chapter I: Review of the chemical constituents, pharmacology and the quality control studies of *Morinda officinalis*.

Chapter II: Isolation of chemical constituent from *Morinda officinalis*.

1. Eighteen compounds had been isolated from this herb by various chromatographic methods. The molecular structures of these compounds were elucidated by NMR spectrum and chemical methods as follows:

1-hydroxy-2-methoxyanthraquinone (1), physcion (2), digiferruginol (3), lucidin ω -ethyl ether (4), 2-hydroxy-1-methoxyanthraquinone (5), rubiadin (6), rubiadin-1-methylether (7), 1,3-dihydroxy-2-hydroxymethyl-anthraquinones (8), anthraquinone-2-carboxylic acid (9), 1,3-dihydroxy-2-methoxyanthraquinone (10), 1,2-dimethoxy-3-hydroxyanthraquinone (11), alizarin (12), 3-hydroxy-2-methylanthracene-9,10-dione (13), stigmasterol (14), β -sitosterol (15), 7-hydroxy-6-methoxy-coumarin (16), daucoterol (17) and fumaric acid (18).

2. Compound 3, 8, 9, 12, 13, 14, 17 and 18 were isolated from this herb for the first time.

Chapter III: Quantitative analysis of seven anthraquinones in *Morinda officinalis* by using pressurized liquid extraction and high performance liquid chromatography.

Chapter IV: Conclusion and significance of the project.

Key words: *Morinda officinalis*, Anthraquinones, Coumarin, HPLC