

## ABSTRACT

### High Performance Thin Layer Chromatography Method Development for Quality Control of Extracts for the Treatment of Kidney Stone - Literature Review

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Urolithiasis (kidney stone) is a stone-forming process in the urinary tract with an increasing prevalence. Herbal plants are known as the best remedy to prevent and cure urolithiasis as they play roles in controlling the process of stone crystallization. Plants such as *Plantago major*, *Orthosiphon stamineus*, *Sonchus arvensis* and *Sericocalyx crispus* have been used empirically, and its antiurolithiatic activity has been proven, these are what make these plants potential to be developed into herbal medicine. This literature review aims to determine which marker compounds are suitable for quality control of plant extracts and to find mobile phase that can be used to determine the fingerprint chromatogram of these plant extracts based on their marker compounds using the HPTLC method. HPTLC is a modern, automated version of TLC with more efficient separation and limit detection and is an outstanding alternative to GC and HPLC. Databases used are Google Scholar, Elsevier, PubMed, and ResearchGate and keywords used are 'chemical marker' 'quality control' 'chromatogram fingerprint' 'HPTLC' '*Sonchus arvensis*' '*Sericocalyx crispus*' '*Orthosiphon stamineus*' '*Plantago major*' etc. Based on their activity and availability in plants, chemical markers that are suitable for quality control of extracts that can be used as antiurolithiatic agent are sinensetin for *O.stamineus*, aucubin for *P.major*, quercetin for *S.arvensis* and stigmaterol for *S.crispus*. Mobile phase that can be used for each extracts are toluene:ethyl acetate:formic acid (3:7:0.1) for *O.stamineus*, 1,4-dioxane:xylene:propan-2-ol:12.5%NH<sub>3</sub> (1:2:5:2) for *P.major*, ethyl acetate:formic acid:acetic glacial acid:water (100:11:11:26) for *S.arvensis* and toluene:acetone:acetic acid (8.9:0.9:0.2) for *S.crispus*.

**Keywords :** chemical fingerprint, HPTLC, herbal plants, quality control, urolithiasis.