

E2-13: Chemical analysis of calculi isolated from urolithiasis patients of Sri Lanka

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Formation of urinary calculi, pathologically termed as urolithiasis, is a common health problem in Sri Lanka. Thirty- nine surgically removed urinary calculi, isolated from patients admitted to Colombo General Hospital and Sri Jayewardenepura Hospital were analysed for their chemical composition. The contents of magnesium, calcium, sodium, oxalate, phosphate and urate were determined using atomic absorption and spectrophotometric methods. A majority of the calculi (n=30) had oxalate as the major constituent with 27 - 58% of the weight being oxalate. Six calculi predominantly contained phosphate (31 - 39% w/w). In 36 of the 39 calculi analysed, calcium (10 - 29% w/w) was the 2nd major constituent. Only 5 calculi had a reasonably high content of magnesium (5 - 9% w/w). Sodium content of all calculi was less than 1.5% of the weight. A significant amount of urate (4% w/w) was found only in 1 calculus. Thus, 3 major types of calculi: oxalate, phosphate, and urate, have been identified in this study. It is now possible to carry out in-vitro assays on the dissolution of various types of urinary calculi in herbal extracts, with the hope of developing drugs that are capable of dissolving urinary calculi.