

**ELEMENTAL ANALYSES AND
BIOCHEMICAL STUDIES ON TRADITIONAL
MEDICINE FORMULATION
*SETKUPALA NO. 1 (TMF – 12)***

Ph D DISSERTATION

SHWE SIN

**DEPARTMENT OF CHEMISTRY
UNIVERSITY OF YANGON
MYANMAR**

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ABSTRACT

Myanmar traditional medicine formulation TMF-12 (*Setkhupala No.1*) was studied. This medicine is utilized for treatment of eye disorders such as blurring of vision and cataract; aches and pain; blood impurity and gynaecological disorders. The elemental content of TMF-12 was investigated with Neutron Activation Analysis (NAA), Atomic Absorption Spectrophotometry (AAS) and Energy Dispersive X-Ray Fluorescence (EDXRF) method. A total of 28 elements such as Na, Mg, Si, P, S, Cl, K, Ca, Sc, Cr, Mn, Fe, Co, Cu, Zn, As, Se, Br, Rb, Sr, Zr, Cd, Sb, Cs, Ba, La, Pb, Eu were detected. Of these, Cl (5.845 %) , K (2.8968%), Ca (2.1806 %) were present as major elements whereas Na (0.9393 %), S (0.8425%), Si (0.8014 %), Mg (0.1450 %), Fe (0.0719 %), P (0.2711 %), Sr (0.0539 %), Br (0.0118 %) were present as minor elements. It was also found out that Cu (0.0018 %), Zn (0.0015 %), Ba (0.0015 %), Rb (0.0010 %), Cr (0.0009 %), Zr (0.0036 %), As (0.0002 %), Mn (0.0001 %), Cd (0.0001 %), Pb (0.0001 %), La (0.00004 %), Co (0.000024 %), Sc (0.000009 %), Cs (0.000008 %), Se (0.000006 %), Sb (0.000006 %), Eu (0.000001 %) were present as trace elements.

Partition experiments were conducted for biochemical study. It was found that some elements such as P, S, Cl, K, Ca, Sc, Cr, Mn, Fe, Co, Ni, Cu, Zn, Br, Pb, Ta, Gd were present in various fraction of solvents. This suggested that some of them might be present as metal organic compounds. From phytochemical

and FT-IR study, type of organic compounds present in TMF-12 might be alkaloids, glycosides, alcohol, amino acid, aliphatic, aromatic, phenolic and olefinic compounds.

According to ophthalmologist, steroid compounds are used for the treatment of optic Neuritis. Antimicrobial activity studies showed the inhibitory activity of the soluble crude extracts against test organisms including *B. subtilis*, *B. pumalis*, *S. aureus*, *Pseudomonas aeruginosa*, *Candida albican* and *Mycobacterium* species. *Pseudomonas* and *Candida* are relevant to eye disorders. Preliminary screening for radical scavenging of various extracts from TMF-12 exhibited the antioxidant activity tested by DPPH solution. Besides, pet-ether extract of TMF-12 was studied by GC-MS. It was noted that fatty acid and their esters might be presented in TMF-12.