

**THE ANTI-ARTHRITIC ACTIVITY AND  
BIOCHEMICAL STUDIES OF PLANTS MATERIALS IN  
MYANMAR TRADITIONAL MEDICINE FORMULATIONS  
(ANTI -STREPTOCOCCAL & ANTI -INFLAMMATORY PROPERTIES)**

**Ph.D. DISSERTATION**

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Biochemical studies of Plant Materials in  
Myanmar Traditional Medicine Formulations**

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Abstract	Myanmar Traditional Formulations (TMF - 06) and (TMF - 23) in the ratio of 10:3, used for the treatment of rheumatic arthritis were analysed . Among the plant constituents Nga - nwin, Samon - net and Sepale were present in larger quantities than other constituents. Yield percents of essential oil were (6%) from Nga -nwin, (1.5%) from Samon - net and (0.95%) from Sepale by steam distillation. From the determination of the anti-inflammatory activity of essential oil by using plethysmometer on albino rats, essential oil of Nga - nwin was the best and comparable to Aspirin. Antibacterial activity of TMFs and plant materials on <i>Streptococcus pyogenes</i> determined by agar disk diffusion technique showed the anti - arthritic activity. Accordingly, the essential oil of Nga - nwin was fractionated by column chromatography by gradient elution with petroleum ether and ethyl acetate. It gave curlone (30%), aromatic turmerone (25%), zingiberene (25%) and $\alpha$ -phellandrene (1%). The isolated compounds were identified by UV, FTIR, $^1\text{H}$ NMR, $^{13}\text{C}$ NMR, DEPT, $^1\text{H}$ - $^1\text{H}$ COSY and GC.MS. Isolated curlone, aromatic turmerone, zingiberene and d - $\alpha$ -phellandrene also showed anti - arthritic activity.

70 % ethanol extracts of TMF (06) ,TMF (23),TMF (6&23) (10:3), various 23 extracts, essential oil of Nga-nwin, samon-net, sepale and isolated compounds were screened by *in vitro* method using agar disk diffusion technique on *Streptococcus pyogenes*. Except (4) extracts all the samples tested showed anti-arthritic activities. Out of them, the zones of kantgyok-ni (20 mm), Ziya (20 mm) and Layhnyin (15 mm) also showed active arthritic activity. From the result of National Health Laboratory, zone of penicillin was (19-25) mm.

From the comparison of anti-inflammatory activity of Aspirin, essential oil of Nga-nwin, Samon-net and Sepale by using plethysmometer on albino rats, all showed in anti-inflammatory activity. From the data of the paw oedema volume of albino rats, the essential oil of Nga-nwin (3 ml/kg) had the best activity and was similar to that of Aspirin (100 mg/kg).