Summary

- This thesis describes the isolation, the characterization and pharmacological activities of phytoconstituents from the Myanmar medicinal plants *Streptocaulon tomentosum* Wight & Arnott (Asclepiadaceae), *Curcuma comosa* Roxb. (Zingiberaceae) and *Vitis repens* Wight & Arm. (Vitaceae).

- Triterpenoids, cardenolides, lignanes, and steroidal saponines (compounds 1-20) including three new substances (13, 15, 19) were isolated from the roots of *Streptocaulon tomentosum*.

\[\text{17} \alpha \text{-H-periplogenin-} \beta \text{-glucosyl-(1-4)-2-O-acetyl-digitalose (13)}\]

\[\text{17} \beta \text{-H-periplogenin-} \beta \text{-D-digitoxoside (15)}\]

\[\Delta^5\text{-pregnene-3} \beta, 16\alpha\text{-diol-3-O-[2,4-O-diacetyl-} \beta \text{-digitalopyranosyl-(1-4)-} \beta \text{-D-cymaropyranoside]-16-O- [} \beta \text{-glucopyranoside] (19)}\]
- Curcuminoids and sesquiterpenoids (compounds 21-49) including nine new sesquiterpenes (23, 25, 26, 33, 35, 36, 39, 41, 45) were characterized from the rhizome of *Curcuma comosa*.

![Chemical structures of compounds 23, 25, 26, 33, 35, 36, 39, 41, 45](image)

- Polyphenols, fatty acids, and lignanes (compounds 50-58) were obtained from the rhizome of *Vitis repens*.

- Four extracts of each plant were tested for their antifungal properties against *Cladosporium cucumerinum* Ell. & Arth. according to Gottstein *et al.* (1982).

- Six cardenolides isolated from *Streptocaulon tomentosum* were tested for their antiproliferative activity *in vitro* against MCF-7 (human breast cancer cell line) and L 929 (mouse fibroblast cell line). Among six cardenolides, 17α-H-periplogenin-3-**O-β-D-digitoxoside**, and 17α-H-periplogenin-3-**O-β-D-cymaroside** exhibit significant antiproliferative activity (*IC*₅₀ values, < 1μM) against MCF-7. Four cardenolides were examined for their cellular viability in the tumor cell and U 937 (human leukemic cell line) at concentrations 100 μM, 10 μM, and 1 μM. All these four cardenolides show the induction of apoptosis at 100 μM and 10 μM in both cell lines.