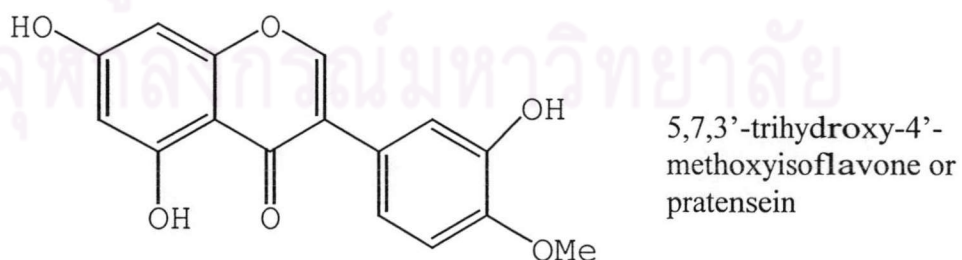
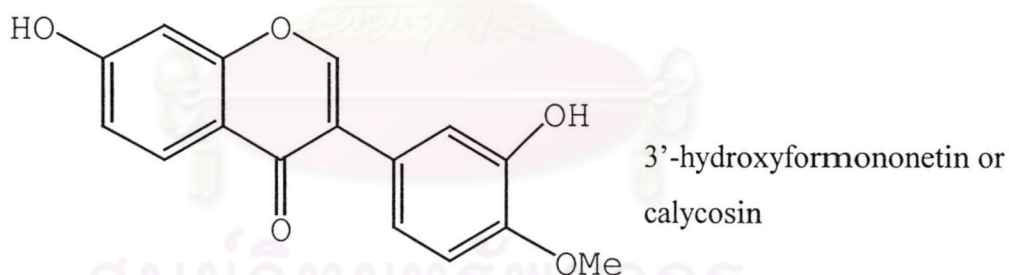
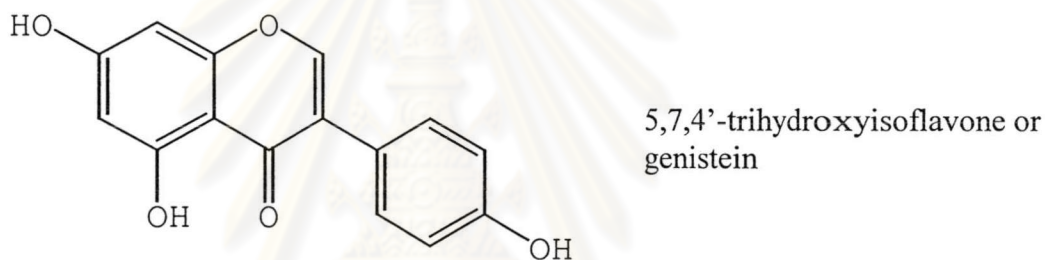
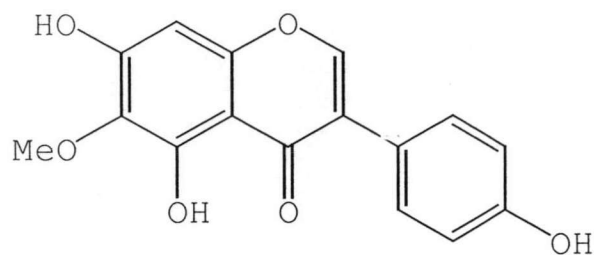


CHAPTER 4

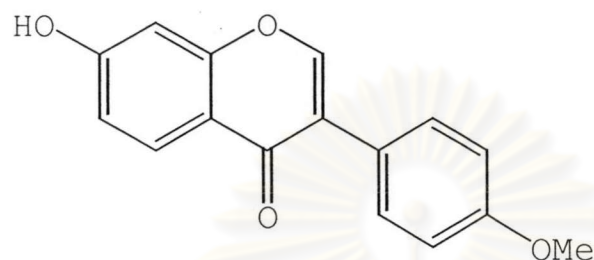
CONCLUSION

In summary, the chemical constituents of the stems of *Dalbergia cochinchinensis* were isolated from ethyl acetate crude extracts to yield thirteen compounds. The chemical structures were characterized by means of spectroscopic studies, physical properties and biological activities were also examined. The isolated compounds are summarized as follows :

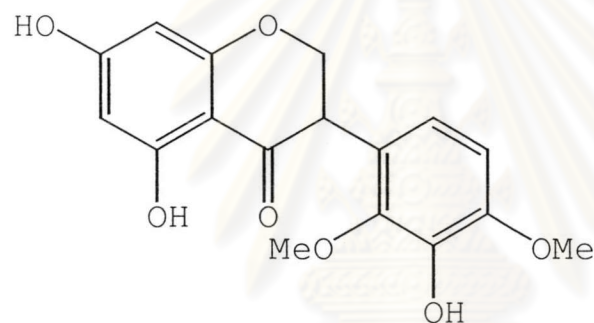




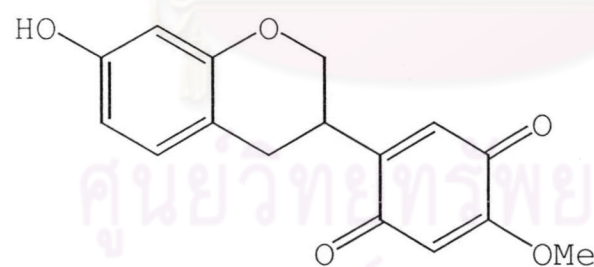
5,7,4'-trihydroxy-6-methoxy
isoflavone or tectorigenin



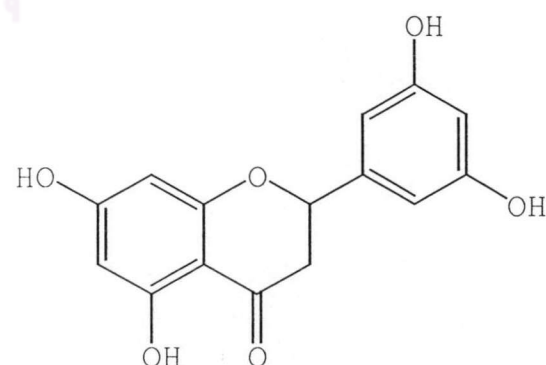
7-hydroxy-4'-methoxyisoflavone
or formononetin



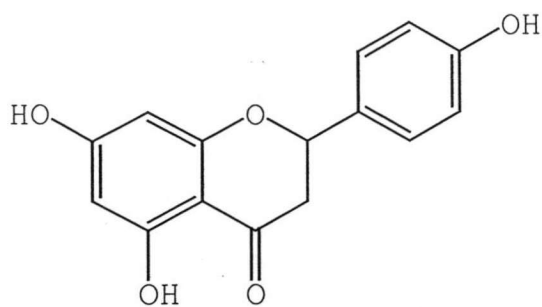
5,7,3'-trihydroxy-2',4'-
dimethoxyisoflavanone or
secundiflorol H



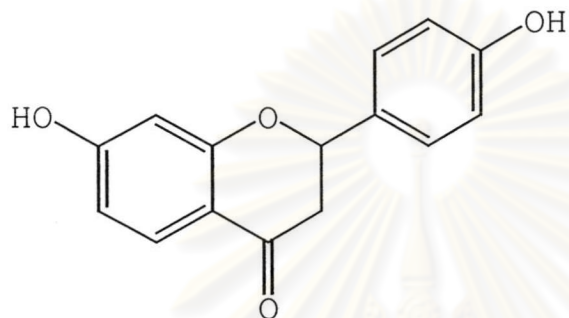
2-methoxy-5-(7-hydroxychroman
-3-yl)-1,4-benzoquinone or
claussequinone



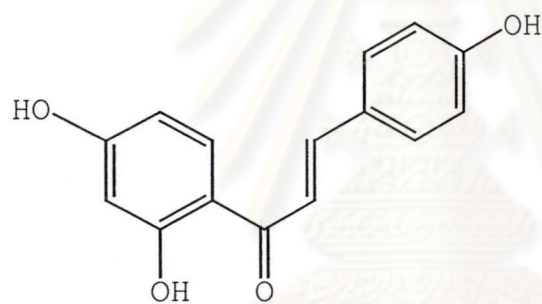
5,7,3',5'-tetrahydroxyflavanone



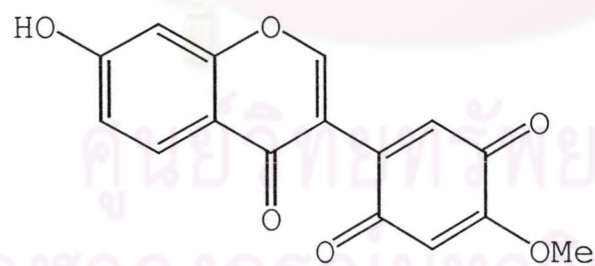
5,7,4'-trihydroxyflavanone
or naringenin



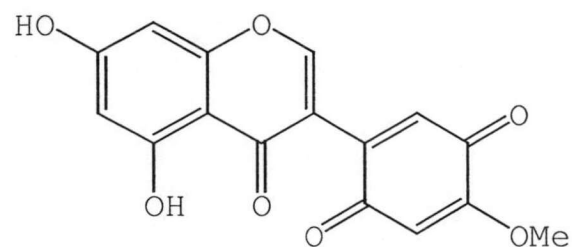
7,4'-dihydroflavanone
or liquiritigenin



2',4',4'-trihydroxychalcone
or isoliquiritigenin



bowdichione



5,7-dihydroxy-4'-
methoxyisoflavonequinone
(**new compound**)

The structure of compound **13** (new compound) was also confirmed by single crystal X-ray diffraction.

In term of biological activities, formononetin and isoliquiritigenin showed moderate cytotoxic activity against KB tumor cell. 5,7,3',5'-tetrahydroxyflavanone exhibited the most potent free radical scavenging activity on DPPH (IC_{50} 0.080 mM) and calycosin, pratensein and secundiflorol H showed moderate activity (IC_{50} 0.530, 0.620 and 0.415 mM), whereas prasentein, bowdichione and 5,7-dihydroxy-4'-methoxyisoflavonequinone (new compound) showed more potent superoxide scavenging activity (IC_{50} 8.00, 1.55 and 1.40 μ M) than BHA (IC_{50} 9.50 μ M). From these activities, this plant has a potential to be chemopreventive from oxidation.

From above data, the biological activity provide that the free radical and superoxide anion radical scavenging depend on their structures and substituted on B ring. Especially for superoxide anion radicals, the quinone on B ring with the 4-oxo group (compound 11 and 13) showed higher activity than BHA.

From the literature review, the major determinations for radical scavenging capacity are the presence of a hydroxyl group at C-3' in ring B, which has the better electron-donating properties and is a radical target.

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Proposal for Future Work

This paper reported that the stem of *Dalbergia* genus produce a variety of flavonoids. Our investigation of the stems of this plant has led to isolation and characterization of all flavonoids. The naturally occurring flavonoids always play an important role because of their biological activity as antimicrobials, antiallergenic, antiviral, anti-inflammatory, including antioxidants. More substantially, 5,7,3',5'-tetrahydroxyflavanone, flavonoid, isolated from the stem of *Dalbergia cochinchinensis* showed high free radical scavenging activity on DPPH, while 5,7-dihydroxy-4'-methoxyisoflavonequinone (new compound), pratensein, bowdichione showed highest % SOD activity. All of isolated compounds might be worthwhile to test further for other activity or specific bioassay.

Another aspect that would provide more fulfillment to this research is a chemotaxonomic study on chemical constituents from the stems of this plant on more polar parts for example methanol crude extract.



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