RESVERATROL DERIVATIVE COMPOUNDS FROM STEM BARK OF *HOPEA* AND THEIR BIOLOGICAL ACTIVITY TEST

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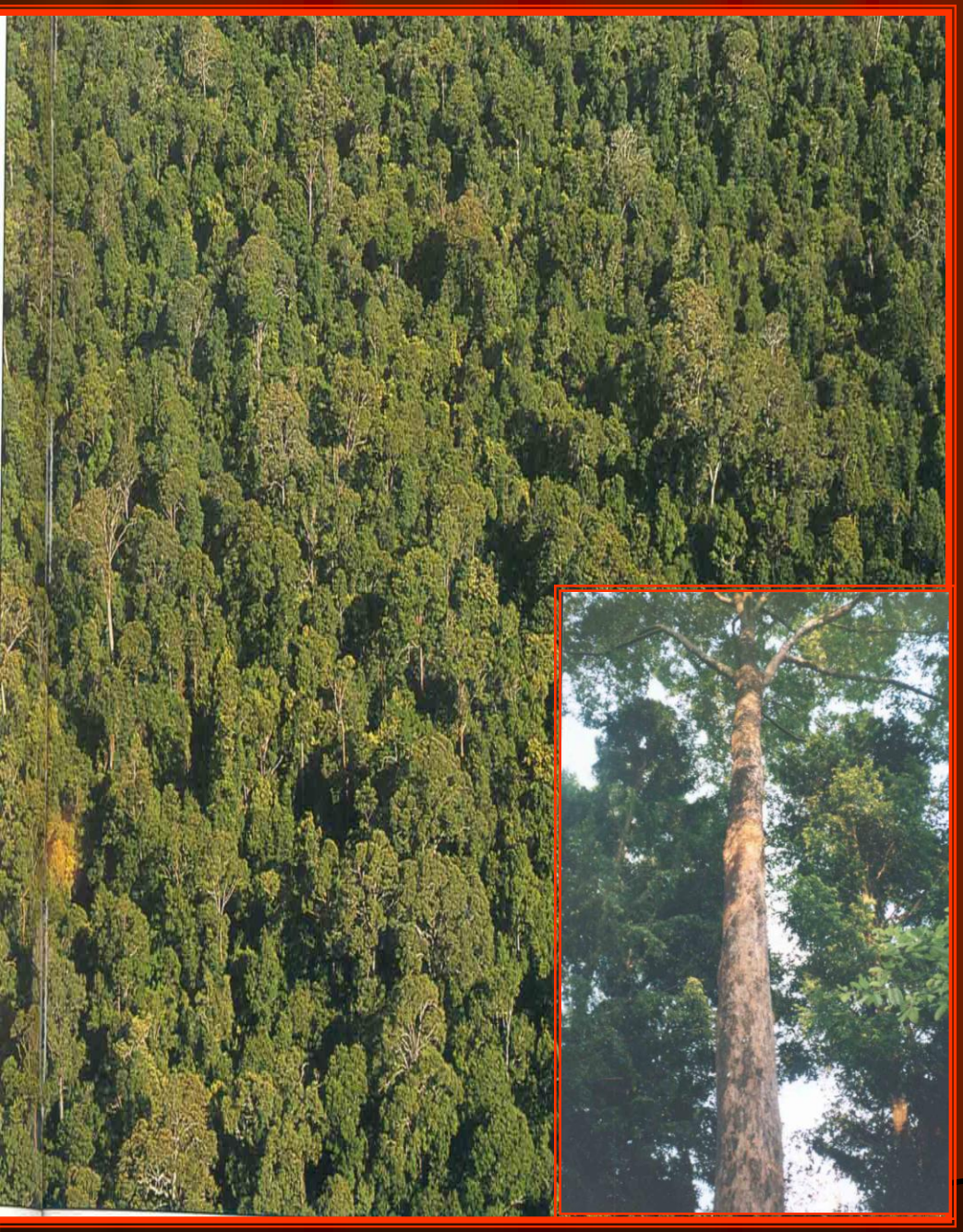


Hopea is one the main genus of Dipterocarpaceae, consisting of approximately 100 species and widely distributed in Indonesia specially in Kalimantan

The local name is " cengal, merawan hitam or pengarawan". The plant ussually can be used as material building, plywood etc.

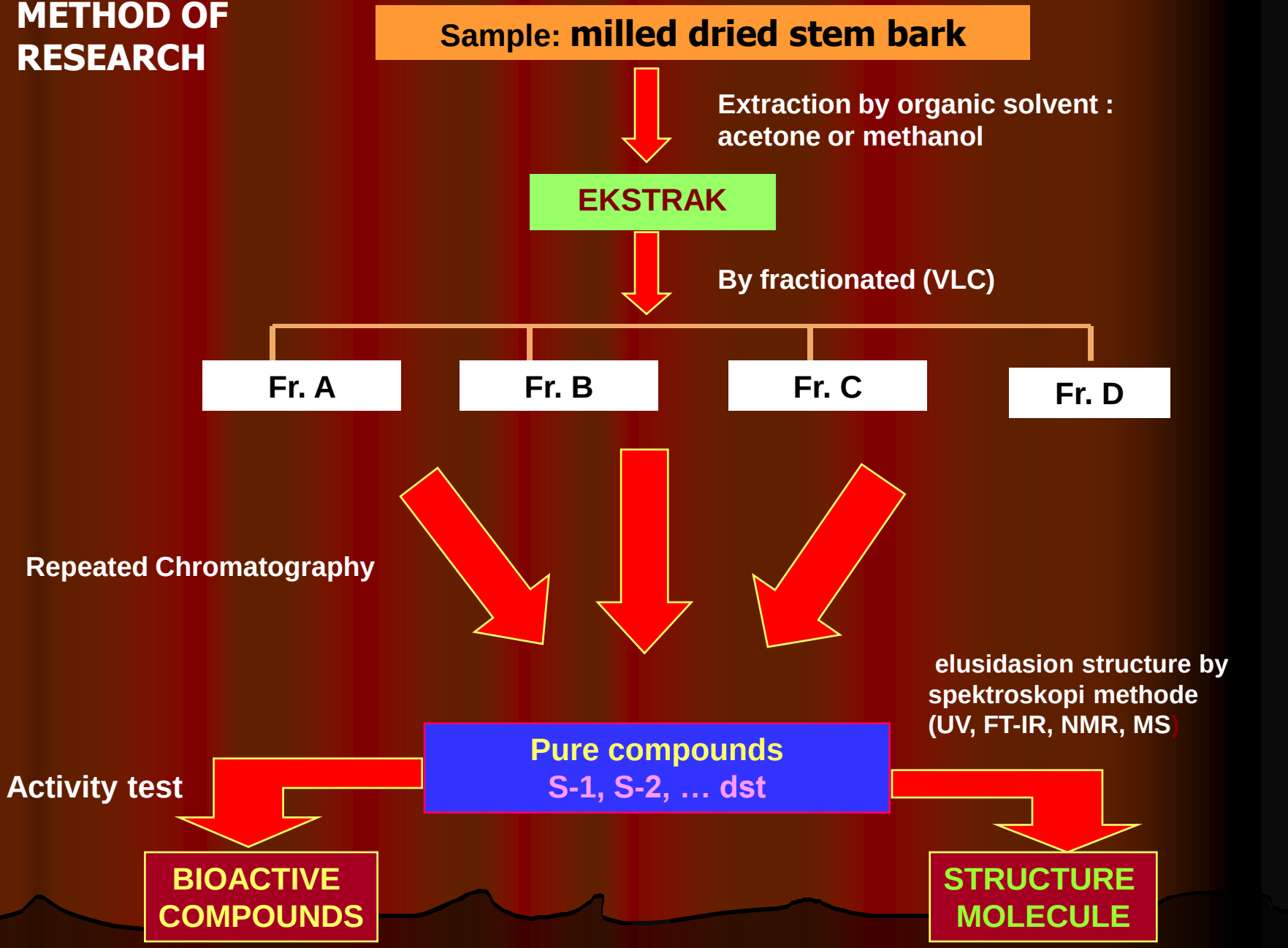
This family of plant is known to produce a variety of resveratrol oligomer

These structures are very interesting and showed interesting biological activity, such as antibacterial, anticancer, antihepatotoxic, and anti-HIV

Objective

Phytochemical study of resveratrol oligomers from *Hopea mengarawan, H. odorata, and H. nigra*

METHOD OF RESEARCH



HOW TO ISOLATED COMPOUNDS FROM NATURAL PRODUCT

Maserated by organic solvent

removal of the solvent under reduced pressure

Prepared for VLC

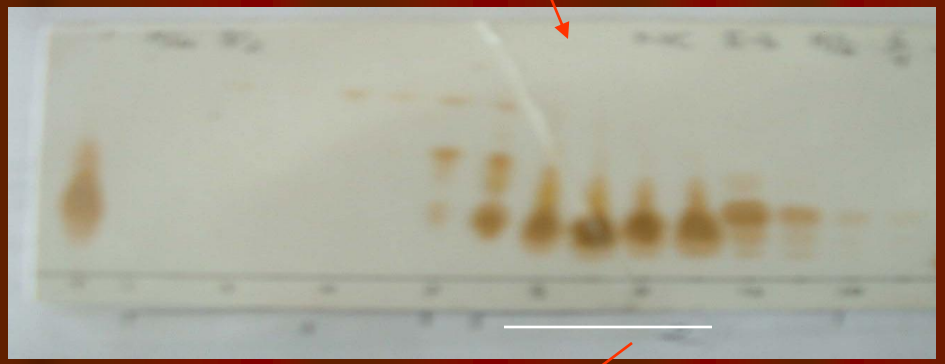
VLC

Series of fraction

chromatogram from chromatography coloumn

1

2



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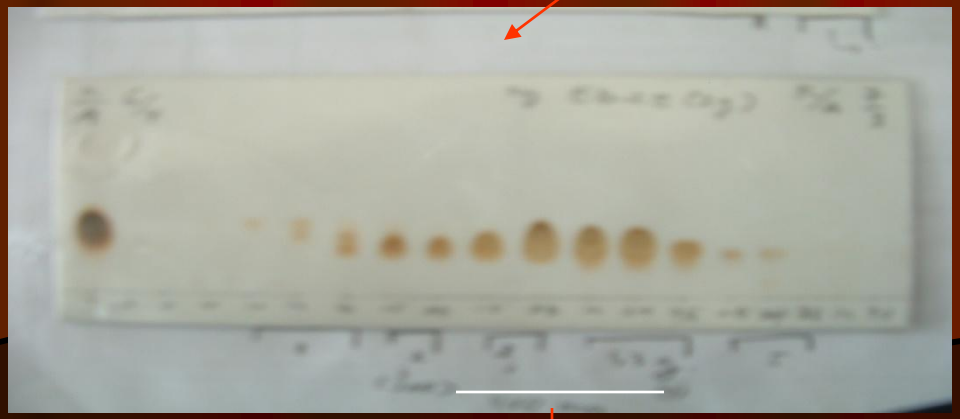

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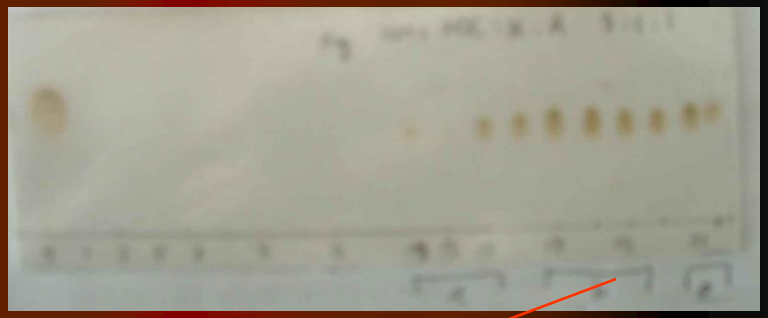

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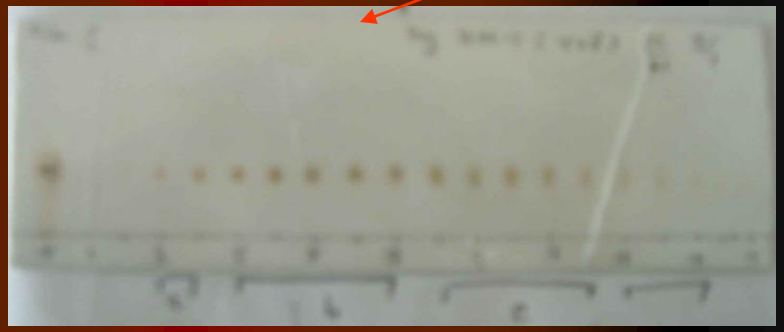
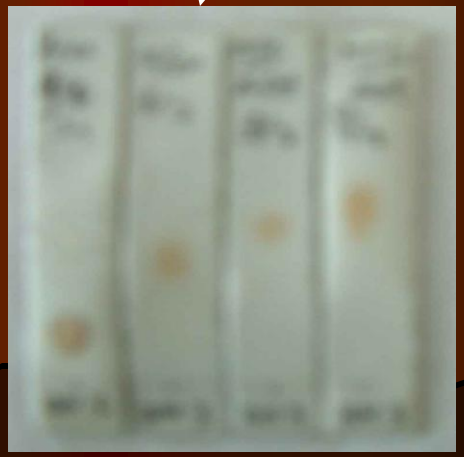
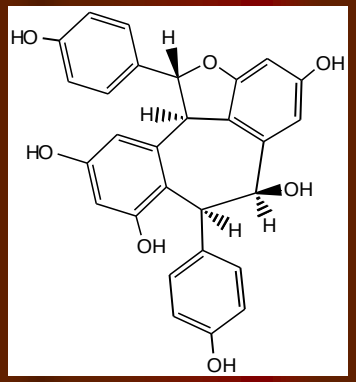
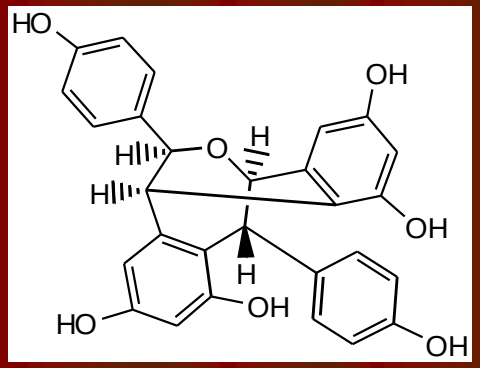




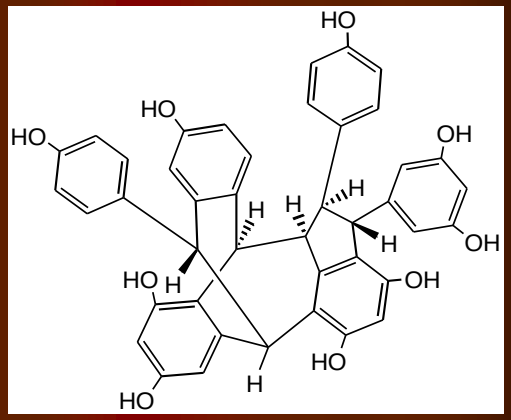
Isolated compounds from *H. mengarawan* (5 Kg)



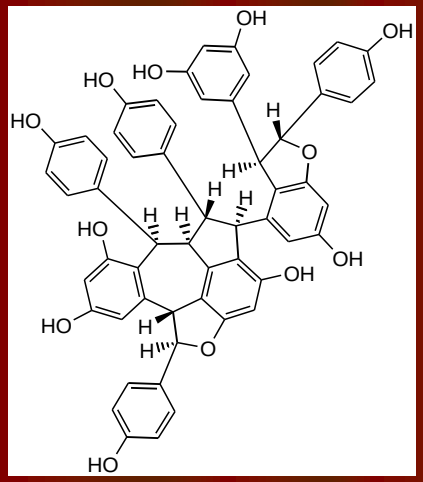
balanocarpol (300 mg)



heimiol A (200 mg),

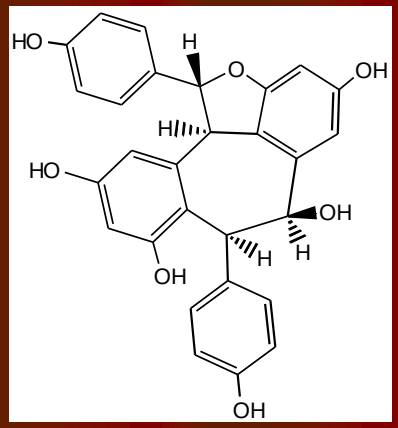


vaticanol G (70 mg)

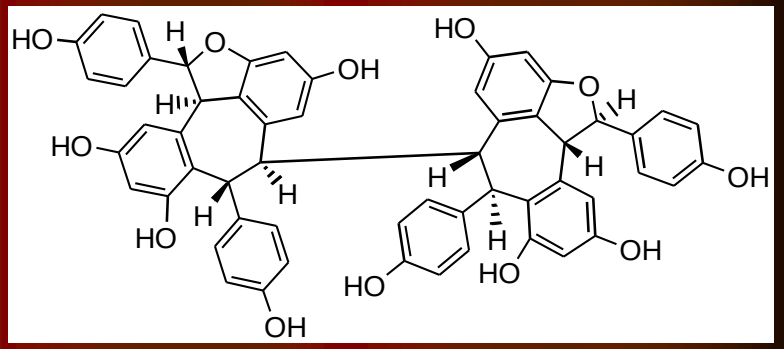


vaticanol B (200 mg)

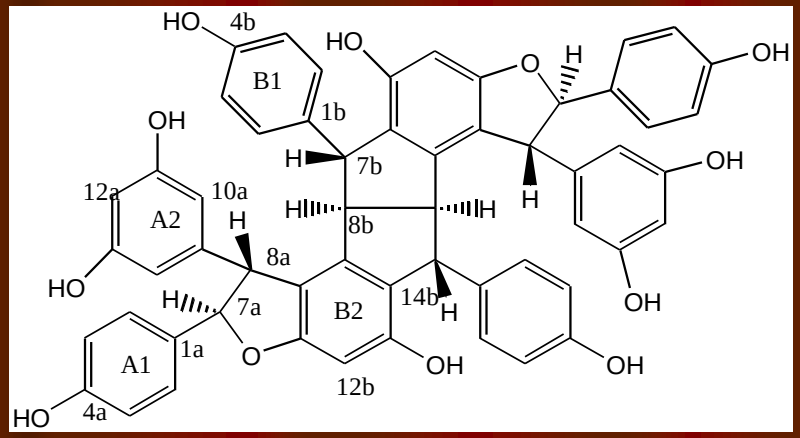
Isolated compounds from *H. odorata* (3,8 Kg)



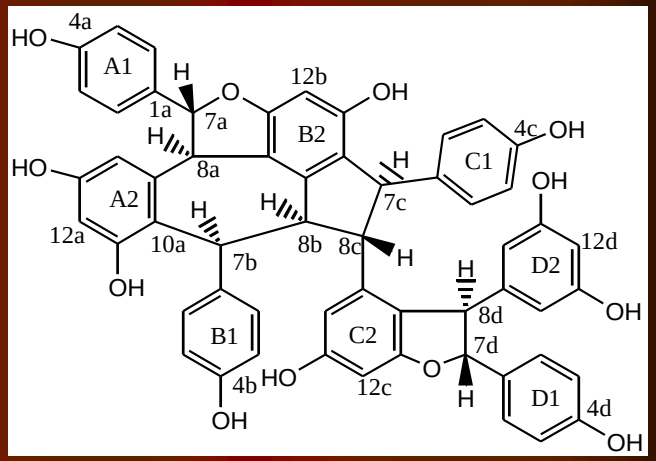
balanocarpol (300 mg)



hopeaphenol (1500 mg)

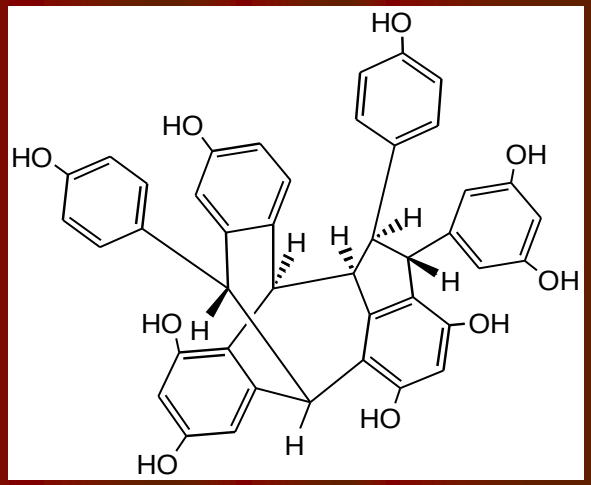


ampelopsin H (250 mg)

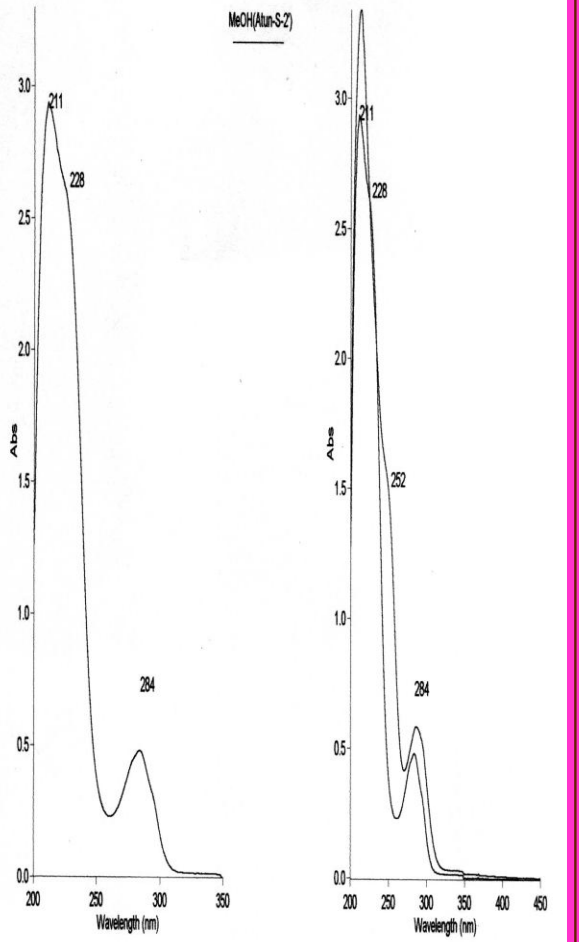


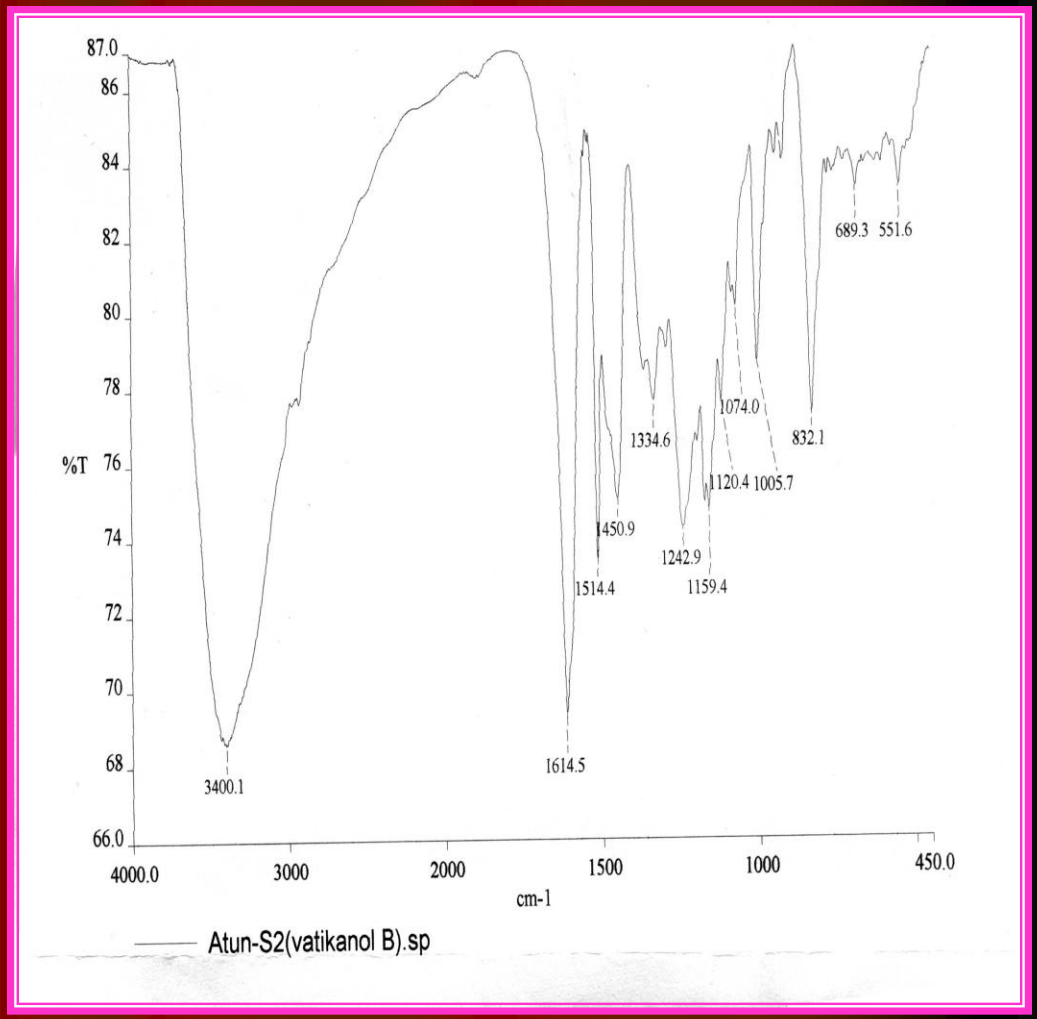
hemlesyanol C (120 mg)

Isolated compounds from *H. odorata* (3,8 Kg)



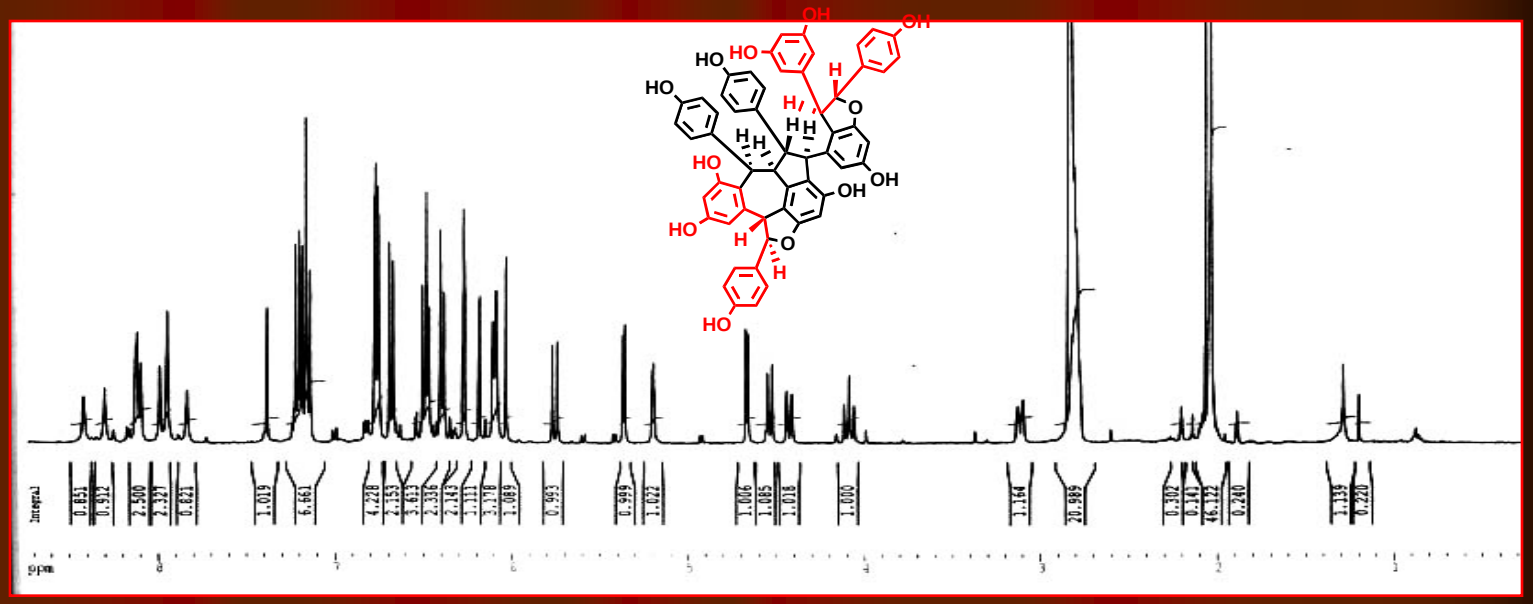
vaticanol G (200 mg)

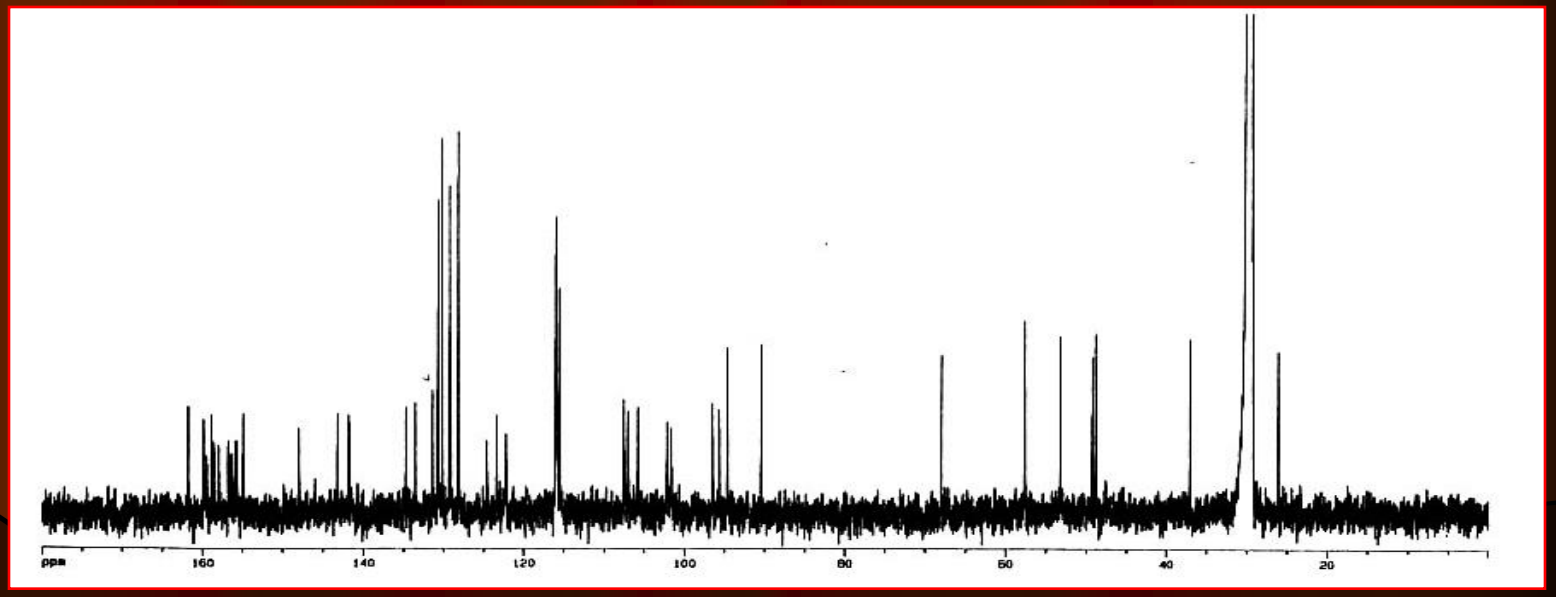




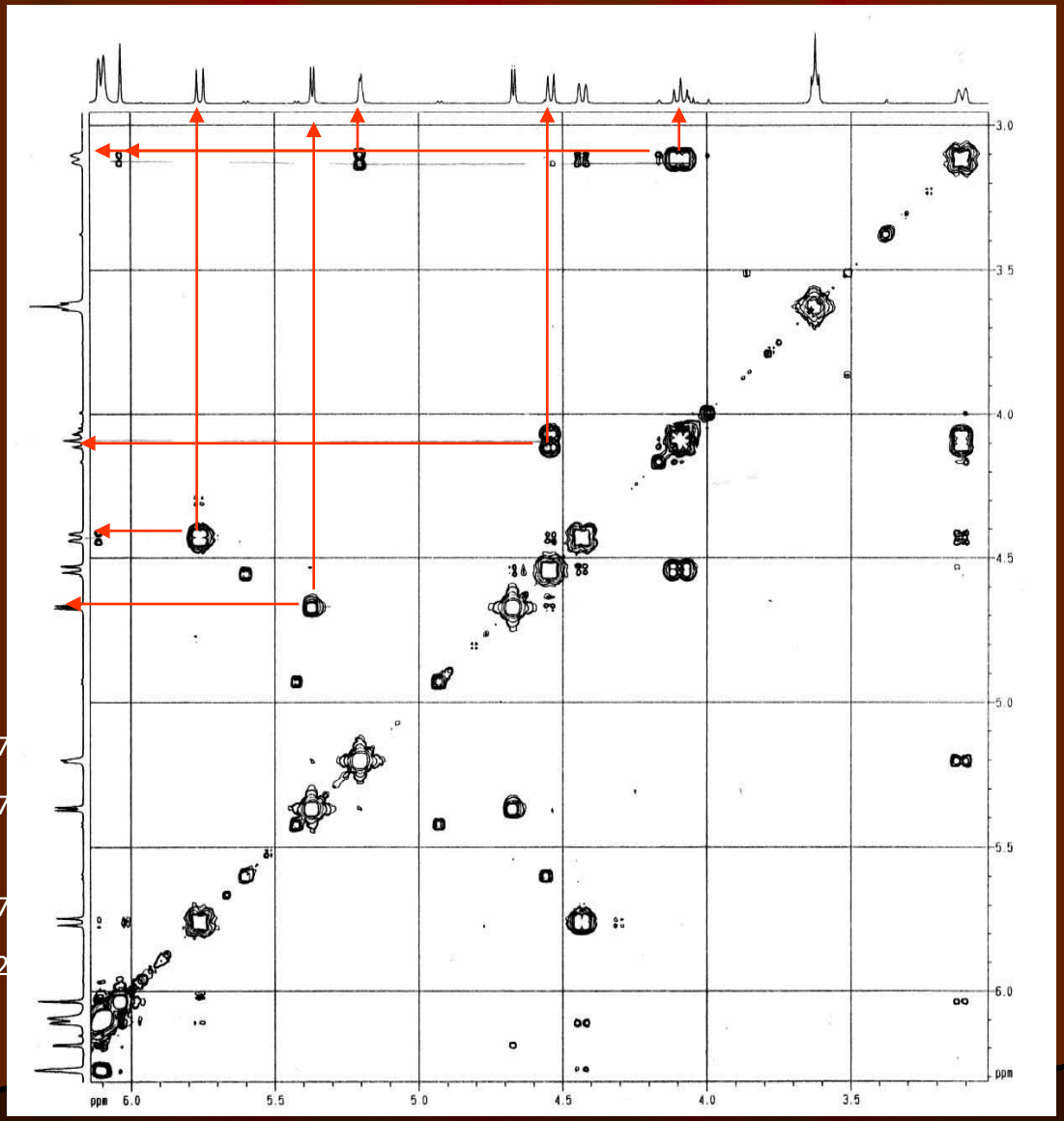
Spektrum UV dan IR Vaticanol B

Spectrum ^{1}H and ^{13}C NMR of vaticanol B





Spectrum H-H COSY NMR of vaticanol B



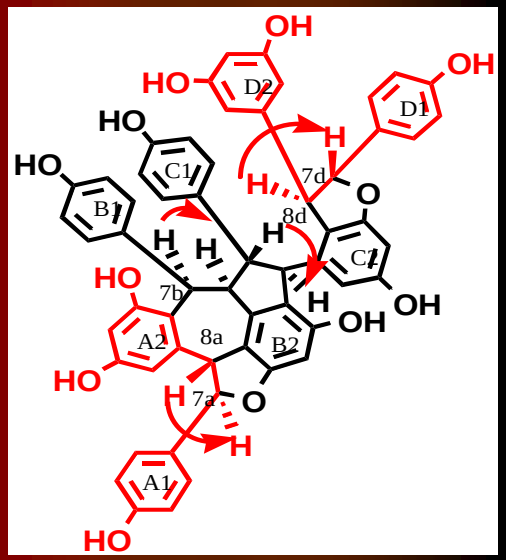


Table 3. Data activity test as hydroxyl radical scavenger

Sample	IC_{50} (μg/ml)	Note
Balanocarpol	1802,3	Less active
Heimiol A	4575.3	Less active
Vaticanol G	683.96	active
Vaticanol B	2146.6	Less active
Hopheaphenol	61,8	High active
Ampelopsin H	4840,0	Less active
Hemlesyanol C	425,5	active
Ascorbat acid	83,9	High active
Butylated Hydroxy Toluene (BHT)	1328,1	Less active

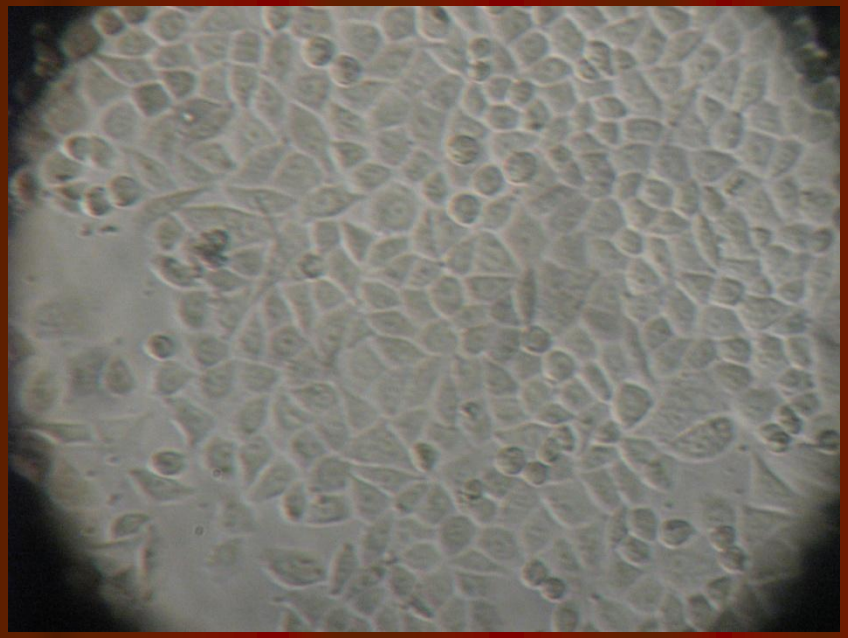
Table. 4. LC_{50} of some compounds from steam bark of *Hopea* against HeLa-S3 cell

No	Sample	LC_{50} µg/ml	Note
1	Balanocarpol	682,16	Less active
2	Heimiol A	Very high	Not active
3	Vaticanol G	Very high	Not active
4	Ampelopsin H	8,12	Very active
5	Vaticanol B	92,04	Very active
6	Hopeaphenol	1931,52	Less active
7	Hemsleyanol C	531,00	Active
8	Doksorubisin (positif control)	96,27	Very active

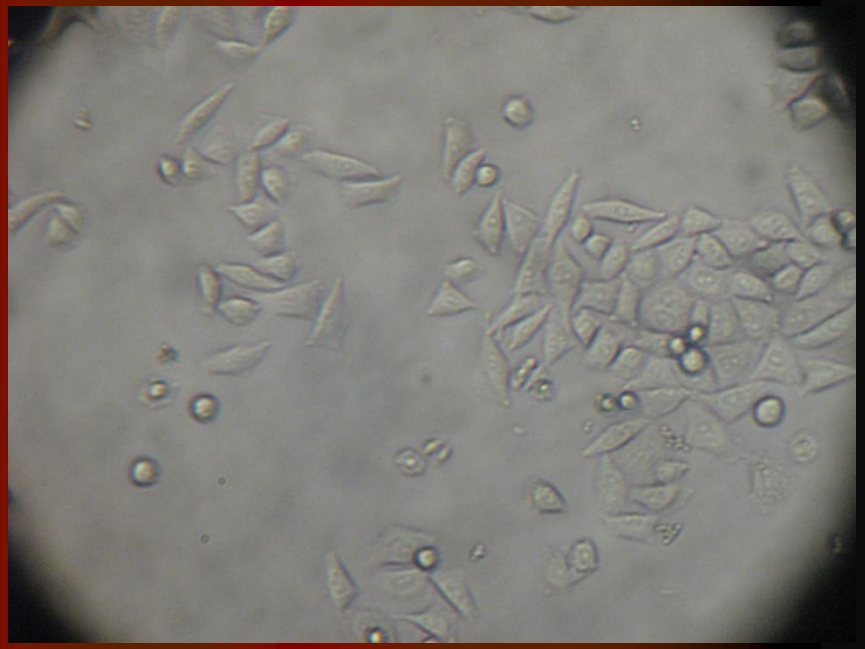
Table. 5. LC_{50} of some compounds from steam bark of *Hopea* against Raji cell

No	Sample	LC_{50} μg/ml	Note
1	Balanocarpol	277,58	Active
2	Heimiol A	Very high	Not active
3	Vaticanol G	11050,96	Not active
4	Ampelopsin H	91,07	Very active
5	Vaticanol B	107,00	Very active
6	Hopeaphenol	135,64	Active
7	Hemsleyanol C	166,84	Active
8	Doksorubisin (positif control)	156,64	Active

Cytotoxicity test by *Hela S3 cell lines*

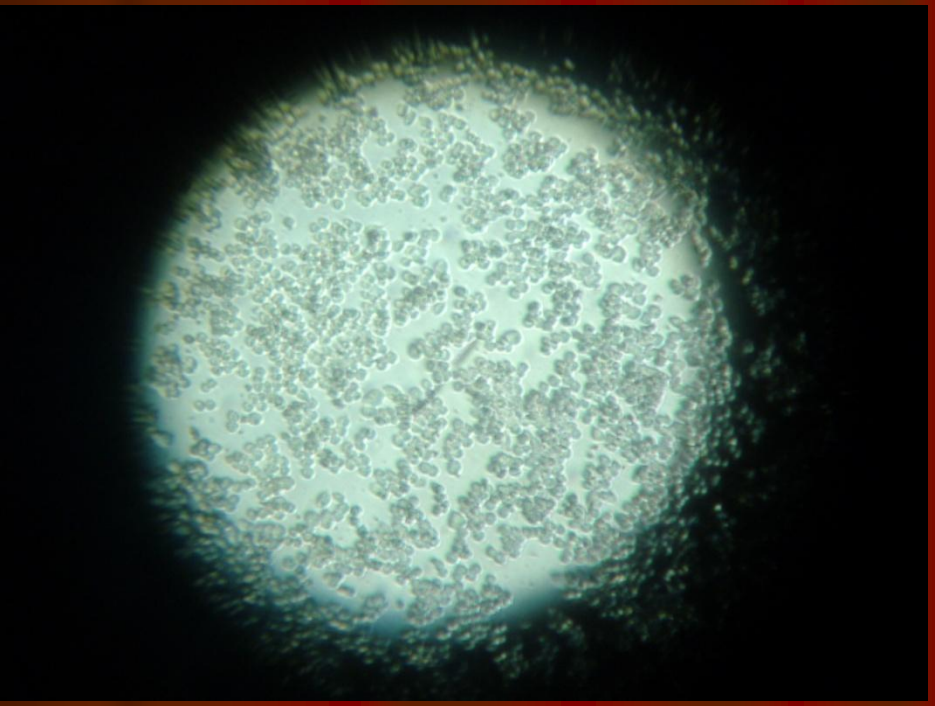


Hela S3 cell lines before experiment

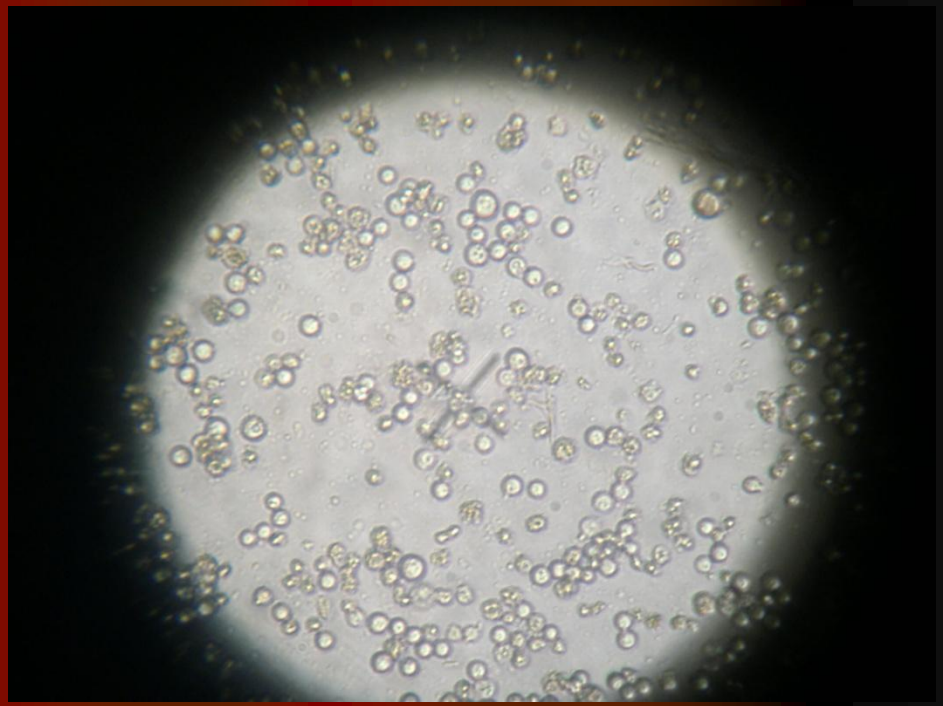


Hela S3 cell lines after experiment

Cytotoxicity test by *Raji cell lines*



Raji cell lines
before experiment



Raji cell lines
after experiment

Conclusion

This research we concluded that resveratrol derivative isolated from the stem bark of *Hopea* consist of dimer, trimer, and tetramer resveratrol. Some compounds have biological activity as antioxidant and cytotoxic effect against Raji and HeLa-S3 lines cell. Hopeaphenol showed the highest activity as antioxidant. Whereas ampelopsin H and vaticanol B gives the highest cytotoxic effect against HeLa-S3 and Raji.

Acknowledgements

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