

PHYTOCHEMICAL SCREENING OF *Chromolaena odorata*
(L) EXTRACTS FOR ANTI-BACTERIAL, ANTI-OXIDANT
AND ANTI-LEUKAEMIC PROPERTIES

MERUL HUDA BT ABD KADIR @ ABDUL RAHMAN

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Phytochemical screening of Chromolaena odorata (L.) extracts
for anti-bacterial, anti oxidant and anti-leukaemic properties /
Nurul Huda Abd Kadir @ Abdul Rahman.

PERPUSTAKAAN SULTANAH NUR ZAHIRAH
UNIVERSITI MALAYSIA TERENGGANU (UMT)
21030 KUALA TERENGGANU

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HAK MILIK
PERPUSTAKAAN SULTANAH NUR ZAHIRAH UMT

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FOR ANTI-BACTERIAL, ANTI-OXIDANT AND ANTI-LEUKAEMIC
PROPERTIES**

NURUL HUDA BT ABD KADIR @ ABDUL RAHMAN

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NURUL HUDA BT ABD KADIR @ ABDUL RAHMAN

October 2006

Chairman : Awang Soh B Mamat, Ph.D

**Member : Mohd. Effendy Abdul Wahid, Ph.D
Sayed Mohd. Zain S. Hassan, Ph.D
Mohd. Hussin Haji Zain, M.Sc**

Faculty : Faculty of Agrotechnology and Food Science

Chromolaena odorata (L.) is a noxious weed that can be found spreading widely in tropical countries. Traditionally, this plant was used to cure wounds and minor burns. The polyphenolic compounds in the crude extract and terpenoids compounds in the essential oil of *Chromolaena odorata* were found to be responsible in inhibiting bacterial and HL 60 cells (Human Promyelocytic Leukaemia) growth. In addition, it also showed the potential as anti-oxidant agent. The content of *Chromolaena odorata* crude extract that contain polyphenol compounds was determined using LC-MS, whereas the compositions of the essential oil that contain terpenoid compounds were obtained using GC-MS. Diffusion and macrobroth dilution methods were utilized to

screen the anti-bacterial effects of the extracts. The crude extract showed high inhibition zones (> 9 mm) on *Staphylococcus aureus*, *Streptococcus group B* and *Pseudomonas aureginosa*, while the essential oil showed good inhibition on *Streptococcus group B* and intermediate inhibition on *Staphylococcus aureus*. Furthermore, the IC_{50} values of the essential oil showed the most efficient effect as anti-oxidant agents in scavenging free radicals of 1,1-Diphenyl-2-picrylhydrazyl (DPPH), followed by crude extract and floral water extract when compared with quercetin as a control. Meanwhile, the essential oil and crude extract of *Chromolaena odorata* showed good inhibition on HL 60 cells growth.

Pengantar : Prof. Nedyas Dr. Arwag Sub B. Maimun, PhD

Ahli : Mohd. Effendy Abdul Wahid, PhD
Sayed Mohd. Zain S. Hassan, PhD
Mohd. Husein Haji Zain, M.Sc

Fakulti : Agroteknologi dan Sains Makanan

Chromolaena odorata merupakan sejenis rumpai liar yang telah dijumpai merata tempai di negara-negara tropika. Secara tradisionalnya, tumbuhan ini telah digunakan untuk mengubati luka dan kesan terbakar yang kecil. Senyawa polifenol di dalam ekstrak methanol (ekstrak kasar) dan sediaan terpenoid di dalam minyak pati daripada *Chromolaena odorata* diteliti bertanggungjawab dalam mempromoti pertumbuhan bakteria dan sel HL 60 (Human Promyelocytic Leukemia). Tumbuhan ini berpotensi sebagai agen anti-oksidan. Keamatan ekstrak kasar *Chromolaena odorata* yang terdiri daripada sediaan polifenol ditubuhkan dengan menggunakan uji IC_{50} manakala komposisi-komponen kandungan minyak pati yang