

THIRTEENTH ANNUAL CONFERENCE

YUCOMAT 2011

Herceg Novi, Montenegro, September 5–9, 2011
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Programme and The Book of Abstracts

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Materials Research Society of Serbia

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Federation of European Materials Societies (FEMS)

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**BIOLOGICAL ACTIVITIES AND PHYTOCHEMICAL SCREENING
OF THE PLANT *KITAIBELIA VITIFOLIA***

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The objective of this study was to evaluate the potential use of essential oil of *K. vitifolia* in the pharmaceutical and food industries. Antimicrobial and antioxidant activities of essential oil of *K. vitifolia* isolated by hydrodistillation using Clevenger-type apparatus were assessed. GC/FID and GC/MS analyses were used to determine the following major components of *K. vitifolia* essential oil: selareoloxide (cis A/B) 17.9 %, selaral 10.9 %, labda-7,13,14-triene 10.6 % and selareol 9.5 %. The antimicrobial activity of the essential oil was evaluated against the bacterial strains: *Staphylococcus aureus* ATCC 25923, *Klebsiella pneumoniae* ATCC 13883, *Escherichia coli* ATCC 25922, *Proteus vulgaris* ATCC 13315, *Proteus mirabilis* ATCC 14153, *Bacillus subtilis* ATCC 6633, and fungal strains: *Candida albicans* ATCC 10231 and *Aspergillus niger* ATCC 16404. Antimicrobial activity was tested using broth dilution procedure for determination of minimum inhibitory concentration (MIC). The essential oil of *K. vitifolia* showed a strong antimicrobial activity. Antioxidant activity was determined by 2, 2-dephenyl-1-picrylhydrazyl (DPPH) free radical scavenging assay. The results on antioxidant activity were compared with control antioxidants, ascorbic acid and BHT. The IC₅₀ values determined for each measurement were 7.81, 5.99, 12.77 µg/ml for essential oil, ascorbic acid and BHT, respectively, for DPPH free radical scavenging.

Keywords: *Kitaibelia vitifolia*, essential oil, antimicrobial and antioxidant activities.