

ABSTRACT

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The present study is focusing on the chemical constituents of mango leaves that could implicate in the resistance of local Egyptian mango (*Mangifera indica*) cultivar called Alphonso to scale insect infestation. For comparison, the same chemical and biological investigation steps were also conducted on the highly susceptible mango cultivar (Sultani) in addition to three other susceptible mango cultivars (Zebda, Baladi and Hindi). The Acuminata scale insect, *Kilifia acuminata* (Signoret) nymphs were used as a bio-indicator. Leaf components were extracted with solvents with different polarities, and fractionated using several column chromatographies, preparative TLC and preparative HPLC. Finally, the isolated bioactive compounds were characterized and quantified with various spectroscopic methods including GC-MS, $^1\text{H-NMR}$, $^{13}\text{C-NMR}$, *IR*, and *UV*. Six bioactive compounds were isolated, of which three were isolated from hexane extract of Alphonso leaves and were found to be moderately repellent to *K. acuminata*; two compounds were isolated from hexane extract of Sultani leaves and were found to be highly attractant to *K. acuminata* and one compound was isolated from methanol extract of Alphonso leaves and was found to be toxic against *K. acuminata*. The repellent compounds isolated from Alphonso leaves were identified as α -pinene, β -pinene and limonene. The attractant compounds extracted from Sultani leaves were identified as cis-ocimene and trans-ocimene while the toxic compound isolated from Alphonso leaves was identified as pyrogallol. The latter compound has not been previously reported as a constituent of *M. indica* species. The overall results of this study suggest that the combined action of three repellent secondary metabolites, namely: α -pinene, β -pinene and limonene and one toxic compound, namely pyrogallol play an important role in resistance of Alphonso mango cultivar against scale insect pests in general or at least against *K. acuminata* scale insect.

Key words: Plant extracts, Identification, Isolation, *kilifia acuminata*, Mango, Biological effect, Insect control.

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TABLE OF CONTENTS:

I -	INTRODUCTION.....	1
II-	REVIEW OF LITERATURE.....	5
	1. 1. Groups of plant secondary metabolites.....	6
	1.1 1.1. Terpenes (terpenoids).....	6
	1.2 1.2. Phenolics	8
	1.3 1.3. Nitrogenous compounds	10
	2 2. Plant secondary metabolites as a resistance trait against herbivores.....	12
	3 3. Mango, <i>Mangifera indica</i> L.....	13
	3.1 3.1 Botanical Aspect of <i>Mangifera indica</i> L.....	13
	3.2 3.2. The Family Anacardiaceae.....	14
	3.3 3.3. Overview of the important secondary compounds within the Family Anacardiaceae.....	14
	3.4 3.4 Back ground on <i>Mangifera indica</i> cultivars.....	19
	4 4. Chemical Investigations on <i>Mangifera indica</i> cultivars.....	20
	5 5. Relation between <i>M. indica</i> cultivars and insect pests.....	33
	6 6. Structural skeletons of the major compounds constituents identified in <i>M. indica</i>	37
III-	MATERIALS AND METHODS	47
	1 1. Plant Material.....	47
	2 2. Sample extraction.....	47
	3 3. Isolation of bioactive components.....	48
	3.1 Hexane extract.....	48
	3.1.1 Silica Gel Column Chromatography (Column 1).....	48
	3.1.2 Silica Gel Column Chromatography (Column 2).....	49
	3.1.3 Preparative TLC.....	49
	3.2 Methanol extract.....	50
	3.2.1 Sephadex Column Chromatography.....	50
	3.2.2 Analysis and Concentration of Fractions.....	50
	3.2.3 Assessment of the fractions.....	51
	3.2.4 Preparative high-performance liquid chromatography (HPLC).....	51
	4 Identification of the bioactive compounds.....	51
	4.1 Gas Chromatographic-Mass Spectrometric (GC-MS) Analysis.....	52
	4.2 Nuclear Magnetic Resonance (NMR).....	52
	4.3 Ultraviolet Spectroscopy.....	53
	4.4 FT-IR spectroscopy.....	53
	5 Quantitative assessment.....	53
	6 Rapid screening of compounds presented in Methanol	53

	fractions.....	54
	7 Laboratory bioassays.....	54
	7.1 Experimental insect.....	54
	7.2 Insect collection.....	54
	7.3 Behavioral assays.....	54
	7.3.1 Multi Choice bioassay.....	54
	7.3.2 No-choice bioassay.....	56
	7.3.3 Toxicity bioassay.....	56
	8 Data analysis.....	57
IV-	RESULTS.....	58
	1. Extraction.....	58
	2. Biological effects of leaf extracts.....	60
	3. Isolation, purification and characterization of bioactive compounds in hexane extracts of both Alphonso and Sultani leaves.....	60
	3.1 TLC.....	60
	3.2 Column chromatography.....	60
	3.3 Separation of H _{Alf2} and H _{Sul-2} fractions.....	65
	3.4 Preparative TLC.....	65
	3.5 Identification and quantification of the isolated bioactive components.....	65
	3.6.1 Identification of compounds in the bioactive isolate number 1.....	69
	3.6.2 Identification of compounds in the bioactive isolate number 2.....	75
	3.6.3 Identification of compounds in the bioactive isolate number 5.....	81
	3.6.4 Identification of compounds in the bioactive isolate number 11.....	81
	3.7 Isolation, purification and characterization of bioactive compounds in methanol extract of Alphonso leaves.....	89
	3.7.1 Sephadex LH-20 column chromatography.....	93
	3.7.2 Preparative HPLC.....	93
	3.7.3 Identification and quantification of the isolated bioactive compound M1.....	97
	4 Combined effects of the isolated compounds from Alphonso leaves.....	106
	5 Screening of the identified bioactive compounds on other <i>K.</i> <i>acuminata</i> susceptible mango cultivars.....	109
V-	DISCUSSIONS AND CONCLUSIONS	114
	1. Isolation and identification of the bioactive compounds...	114
	2. Conclusion.....	120
VI-	SUMMARY.....	121
VII-	REFERENCES.....	122
VIII-	ARABIC SUMMARY	