

Isolation of an anti-HIV compound from *Elaeodendron croceum* (Thunb.) DC.

by

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Table of Contents

Chapter 1: Introduction & Background.....	10
1.1 General introduction	11
1.2 Background on traditional medicine.....	13
1.3 Objectives and hypothesis.....	16
1.4 Plant selection.....	17
1.5 The genus <i>Elaeodendron</i> Jacq.....	18
1.6 <i>Elaeodendron croceum</i> (Thunb) DC.....	19
1.7 Compounds previously isolated from <i>E. croceum</i>	23
1.8 Compounds previously isolated from <i>Elaeodendron</i> spp.....	26
1.8.1 <i>E. buchananii</i>	27
1.8.2 <i>E. glaucum</i>	28
1.8.3 <i>E. transvaalensis</i>	30
1.8.4 <i>E. balae</i>	31
1.9 Discussion.....	32
Chapter 2: Literature review on Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS).....	35
2.1 General.....	35
2.2 Structure of a virus.....	40
2.3 Pathogenesis.....	42
2.4 Current anti-retroviral drugs and their mode of action.....	48
2.5 The immune system.....	49

2.5.1 Antigens.....	52
2.5.2 Antibodies.....	52
2.5.3 T-cell receptors.....	53
2.5.4 Cytokines.....	54
2.5.5 The effect of HIV on the immune system.....	55
2.5.6 Antibody tests.....	55
2.5.7 HIV antigen tests.....	56
2.5.8 Monitoring the effects of HIV.....	56
2.6 HIV/AIDS Statistics	57
2.6.1 Sub-Saharan Africa.....	57
2.6.2 South Africa.....	60

Chapter 3: Extract preparation, isolation and identification of active compounds from *Elaeodendron croceum*.....62

3.1 Introduction.....	63
3.2 Materials and methods.....	63
3.2.1 Plant selection.....	63
3.2.2 Extract preparation.....	65
3.2.3 Isolation of active compounds.....	67
3.2.4 Identification of the active compounds.....	70
3.3 Results.....	70
3.4 Discussion.....	80

Chapter 4: Anti-HIV activity of *Elaeodendron croceum* extract and isolated compound.....82

4.1 Introduction.....	85
4.2 Materials and methods.....	85
4.2.1 Materials.....	85
4.2.2 Reverse Transcriptase.....	85
4.2.3 NF- κ B and Tat.....	87
4.2.4 HeLa-Tat-Luc.....	89
4.2.5 VSV Pseudotype.....	90
4.3 Results.....	91
4.4 Discussion.....	93

Chapter 5: Toxicity of *Elaeodendron croceum* extract and isolated compound.....96

5.1 Introduction.....	96
5.2 Materials and methods.....	96
5.2.1 Preparation of Minimal Essential Medium (MEM).....	96
5.2.2 Preparation of cells for toxicity screen.....	97
5.2.3 Preparation of crude extract and pure compounds.....	97
5.3 Results.....	99
5.4 Discussion.....	102

Chapter 6: Review on digitoxigenin-glucoside and related cardiac glycosides.....	106
6.1 Introduction.....	106
6.2 Digitoxigenin-3-O-glucoside.....	108
6.3 Related cardiac glycosides.....	111
6.3.1 3,14-Dihydroxycard-20(22)-enolide.....	111
6.3.2 Digoxin.....	114
6.3.3 Digitoxin.....	115
6.3.4 Actodigin.....	115
6.3.5 Glycyrrhizic acid.....	117
6.4 Discussion.....	118
Chapter 7: General discussion and conclusion.....	120
Chapter 8: Acknowledgements.....	127
Chapter 9: Summary.....	129
Chapter 10: References.....	132

List of Figures

Chapter 1

Figure 1.1 Causes of death in South Africa, by sex from 1997 to 2001 (Statistics South Africa, 2002).....	13
Figure 1.2 An artist representation of the aerial parts of <i>E. croceum</i>	20
Figure 1.3 Photograph showing the shiny leathery leaves of <i>E. croceum</i>	21
Figure 1.4 Photograph showing the olive-shaped fruit.....	21
Figure 1.5 Known distribution of <i>E. croceum</i> (Archer & Van Wyk, 1998).....	22
Figure 1.6 A=(-)-4'-O-methyl epigallocatechin & B=(+)-6R,13R-11, 11-dimethyl-1, 3, 10-tetra-hydroxy-9- methoxy-peltogynan	23
Figure 1.7 A=Canophyllol & B=30-hydroxylup-20(29)-en-3-one and 30-hydroxylupeol	24
Figure 1.8 A=Tingenin B and Tingenone, B=Galacticol & C= Ouratea proanthocyanidin and Ouratea proanthocyanidin-nona-O-acetate.....	25
Figure 1.9 A=A glycoside of 2 α ,3 β -14-trihydroxy-16 α -acetoxo-14 β -carda-4,20(22)-dienolide-7 β ,8 β -epoxide (buchaninoside) & B=Mutangin (Obz=Benzoyl, Ac=Acetate).....	27
Figure 1.10 A & B=Compounds isolated from <i>E. glaucum</i> (Anjaneyulu & Narayana, 1980).....	28
Figure 1.11 A=Structures of elaeodendroside and related compounds & B=Isocardanolide (Shimada <i>et al.</i> , 1985).....	29

Figure 1.12 A=(+)-11,11dimethyl-1,3,8,10-tetrahydroxy-9-methoxypeltogynan & B=6- β -hydroxy-lup-20(30)-en-3-one.....	30
Figure 1.13 A=Balaenol, B=Balaenonol & C=Netzahualcoyone.....	31

Chapter 2

Figure 2.1 Timeline of HIV infection, with associated symptoms and duration.....	37
Figure 2.2 Correlation between the decreased number of CD4 cells, and different OI associated with the decreased CD4 levels (Smith <i>et al.</i> , 2001).....	38
Figure 2.3 The basic structure of HIV (Mims <i>et al.</i> , 1999).....	41
Figure 2.4 The genome of HIV (Mims <i>et al.</i> , 1999).....	42
Figure 2.5 Stages in the replication cycle of HIV.....	43
Figure 2.6 Relationship between the CD4 count and the corresponding viral load....	47
Figure 2.7 Diagram indicating the different subtype distribution in Africa (De Oliveira, 2005).....	58

Chapter 3

Figure 3.1 Extraction procedure.....	65
Figure 3.2 Diagrammatic representation of the isolation process.....	69
Figure 3.3 TLC (Silica gel 60) plate showing column separation of the ethanolic water extract. The TLC was developed with a system of chloroform:methanol (95:5).....	71
Figure 3.4 TLC plate showing the purified compound digitoxigenin-glucoside, isolated from the active fraction.....	72
Figure 3.5 Structure of digitoxigenin-3-O-glucoside.....	72

Figure 3.6 ^1H -NMR in deuterated acetone.....	73
Figure 3.7 ^{13}C -NMR in deuterated acetone	74
Figure 3.8 Cosy analysis for digitoxigenin-glucoside in deuterated acetone	76
Figure 3.9 HMBC for digitoxigenin-glucoside in deuterated acetone	77
Figure 3.10 HMBC cross-peak connectivity for digitoxigenin-glucoside.....	78
Figure 3.11 HMQC for digitoxigenin-glucoside	79

Chapter 4

Figure 4.1 A = Streptavidin-coated MTP, B = DNA/RNA hybrid, biotin- and DIG-labeled by RT activity, C = Anti-DIG-POD Fab-fragment and D = POD substrate (ABTS).....	86
Figure 4.2 Graph showing the HeLa-Tat-Luc assay results. The first bar shows the control and F1-F3 indicates the fractions and pure compounds F4 (digitoxigenin-glucoside) and F5 (pure unidentified compound) of the extract analysed.....	92
Figure 4.3 Graph showing the results from the MT-2 VSV pseudotype assay. The first bar shows the control and F2 and F3 indicate the fractions and F4 (digitoxigenin-glucoside) and F5 (pure unidentified compound) are pure compounds of the extract added to the assay.....	93

Chapter 5

Figure 5.1 Outlay of microtiter plate for toxicity analysis on VERO cells.....	98
Figure 5.2 Toxicity of the crude ethanolic water (8:2) extract.....	100
Figure 5.3 Toxicity of the semi-purified chloroform extract	101
Figure 5.4 Toxicity of digitoxigenin-glucoside.....	102

Chapter 6

Figure 6.1 Digitoxigenin-3-O-glucoside.....	108
Figure 6.2 3,14-dihydroxycard-20(22)-enolide.....	111
Figure 6.3 Digoxin.....	114
Figure 6.4 Digitoxin.....	115
Figure 6.5 Actodigin.....	116
Figure 6.6 Glycyrrhizic acid (Glycyrrhizin).....	118

List of Tables

Chapter 2

Table 2.1 Statistics of HIV/AIDS infection in sub-Saharan Africa (UNAIDS, 2004).....	59
Table 2.2 Statistics of HIV/AIDS infection in South Africa.....	60

Chapter 3

Table 3.1 Table showing the twelve species extracted, their herbarium specimen numbers and the type of extracts prepared.....	64
Table 3.2 ¹ H-NMR and ¹³ C-NMR values for digitoxigenin-glucoside in deuterated acetone	75

Chapter 6

Table 6.1 Derivatives of digitoxigenin. Gpg = guinea pig, orl = orally and ivn = intravenous (Dictionary of Natural products, 2005).....	113
Table 6.2 I ₅₀ of selected cardiac glycosides on Na ⁺ /K ⁺ -ATPase activity.....	116

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Summary

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HIV/AIDS threaten more than 40 million people worldwide and more than 5 million in South Africa alone. There is no cure for the disease yet, and novel drugs need to be discovered to make any progress in combating the disease.

Twelve extracts from indigenous South African plants were analysed, of which one, *Elaeodendron croceum*, showed exceptionally good inhibition of transcription factors and a recombinant HIV strain in the HeLa-TAT-Luc and MT-2 VSV-pseudotyped recombinant virus assays. The pure compound isolated from this extract seemed to be

the most toxic of all the samples, with toxicity of only 25% at a concentration of 100 µg/ml. When the concentration is increased, the toxicity increased slowly from 15% at a concentration of 0.195 µg/ml until it reached 25% toxicity at a concentration of 100 µg/ml. The active concentration of the compound against HIV is much lower at 100 ng/ml with an inhibition of approximately 90% of the recombinant virus. The therapeutic index of 250 makes it a promising possibility to be studied further for the compound to be used as a drug.

The semi-purified extract and the pure compound were tested for its toxicity on VERO cells. The semi-purified extract had no toxicity up to a concentration of 50 µg/ml and the pure compound had toxicity of 20 % up to a concentration of 25µg/ml. The active concentration of 100 ng/ml for the VSV-Pseudotype assay is much lower than the start of toxicity at 25 µg/ml, and leaves a margin of activity before the toxicity level is reached.

Both the extract and pure compound shows promising results *in vitro* to be developed into a medicine to be used against HIV, but need more research on the effects *in vivo*. Using an extract is easier, cheaper and faster than isolating a pure compound from the extract. It might also be possible that the extract could be prepared as a tea and its use could be very accessible.