

## **BIOGRAPHY**

I was born October 10, 1977 in Winchester, Virginia. I received my Bachelor's Degree in Chemistry from Frostburg State University in May of 2000 before starting the Master's Degree program at North Carolina State University in July of 2000. Currently I am preparing to attend Law School at West Virginia University in August of 2002 in the hopes of pursuing a career in Patent Law

## **ACKNOWLEDGMENTS**

I would like to thank my committee and especially Dr. Petty for all of the work and patience required in this process.

For all of the support and love I would like to thank my parents Jack and Marjorie Aylor and my sister Jaclyn. Thanks for always believing in me and always helping me through any tough times. I would like to thank Amy for being the inspiration to apply to NCSU and always supporting and encouraging me. Without all of you this would have been impossible.

I would also like to thank all of the people that I have met and have helped me here at NCSU. Jay, Tim, Darnell, Josh, Mike, and everyone in my lab that has worked with me has helped in some way. Finally, I would like to thank Vedder for always being excited to see me no matter what has gone wrong in lab.

**TABLE OF CONTENTS**

LIST OF TABLES ..... v

LIST OF FIGURES ..... vi

YEAST TWO-HYBRID STUDY OF GEMINIVIRUS-HOST INTERACTIONS

    Introduction ..... 1

    Methods and Materials ..... 10

    Results ..... 21

    Discussion ..... 35

    Literature Cited ..... 69

## List of Tables

1.	Oligonucleotides used in this study .....	46
2.	Summary of the geminivirus baits and their interactions with the geminivirus preys .....	47
3.	Summary of yeast two-hybrid interactions between viral and <i>N. benthamiana</i> encoded proteins .....	48
4.	Summary of preys isolated from <i>N. benthamiana</i> screen when introduced to all the different baits .....	49
5.	Summary of plasmids used in this study .....	51
6.	Sequence data from candidate clones isolated during the yeast two-hybrid screens.....	52

## List of Figures

1.	Schematic illustration of bipartite geminivirus genome organization	57
2.	Schematic of yeast two-hybrid ‘bait’ vector pLexA and its derivatives	58
3.	Schematic of yeast two-hybrid ‘prey’ vector pB42AD2 and its derivatives	59
4.	Schematic of the yeast two-hybrid system	60
5.	Western blot analysis of potential ‘bait’ fusion proteins	61
6.	Test of autoactivation by SLCV BR1 ‘bait’ fusions to LexA-DB	62
7.	Test of autoactivation by BGMV AR1 ‘bait’ fusions to LexA-DB	63
8.	Western blot analysis of potential ‘prey’ fusion proteins	64
9.	The interaction between the BBR1 bait and viral protein preys	65
10.	The interaction between the SBR1 bait and viral protein preys	66
11.	The interaction between the BAR1 bait and viral protein preys	67
12.	Amino acid sequence comparison between the BR1 proteins of Squash leaf curl virus (SLCV) and Bean golden mosaic virus (BGMV)	68