

# الآية

قال تعالى: (وقل ربي زدني علما)

سورة طه الآية (114)

صدق الله العظيم

إهداء

إلي من أدين لها بعمرى ومستقبلى .....

إليك يا رمز الصبر والحنان.....

إليك يا أروع معانى الحب والتضحية.....

فمنك تعلمت معنى الحياة والصبر وكبرياء النفس وطيبة القلب.....

أهدى إليك ثمرة جهدى.....

أمى الغالية

إلى إخوانى وأخواتى

إلى رفقاء الدرب زملائى وزميلاتى

إلى من أضاءوا لى الظلمات بنور العلم والمعرفة أساتذتى الأجلاء

وإلى كل طالب علم

## **ACKNOWLEDGEMENTS**

I would like to thank those who have helped and inspired me during my doctoral study. I am thankful to my Supervisor , Dr. EkhlashHusein for his encouragement, keen interest, guidance , criticism, advice, continuous and unbounded help throughout this study. Also I am deeply indebted to all members of the Department of Plant Protection, College of Agricultural Studies, Sudan University of Science and Technology.

My deepest gratitude goes to my family and my friends for their love and support. Finally, I offer my regards and blessing to all of those who supported me in any respect during the completion of this project.

# CONTENES

الآية.....	I
إهداء.....	II
ACKNOWLEDGEMNT.....	III
CONTENES.....	IV
CHABTER ONE ENTRODUUTION .....	1
CHAPTER Tow.....	3
LITERATURREVIEW.....	3
2.1 Chickpea.....	3
2.1.1 Scientific classification.....	3
2.1.2 Types.....	3
2.1.3 Botanical features .....	4
2.1.4 Uses.....	5
2.1.5 Environment Requirement.....	5
1.2.5.1 Climate.....	5
2.1.5.2 Soil.....	6
2.1.5.3 Weed control.....	6
2.1.5.3.1 Mechanical.....	6

<b>2.1.5.3.2 Chemical.....</b>	<b>6</b>
<b>2.1.5.3.1.4 Diseases and control.....</b>	<b>7</b>
<b>2.1.5.5 Harvesting.....</b>	<b>8</b>
<b>2.1.5.6 Drying and storage.....</b>	<b>8</b>
<b>2.2 Fusarium oxysporum.....</b>	<b>8</b>
<b>2.2.1 Classification.....</b>	<b>9</b>
<b>2.2.2 Description.....</b>	<b>9</b>
<b>2.2.3 Distribution.....</b>	<b>10</b>
<b>2.2.4 Symptoms.....</b>	<b>10</b>
<b>2.2.5 Disease cycle.....</b>	<b>10</b>
<b>2.2.6 Control.....</b>	<b>11</b>
<b>2.2.1 Biology control.....</b>	<b>11</b>
<b>2.2.2 Culture control.....</b>	<b>12</b>
<b>2.2.3 Botanical control.....</b>	<b>13</b>
<b>2.2.4 Chemical control.....</b>	<b>13</b>
<b>2.2.7 Epidemiology.....</b>	<b>14</b>
<b>2.2.8 Management.....</b>	<b>14</b>
<b>2.2.1 Cultural practice.....</b>	<b>14</b>

**CHAPTER THREE .....15**

**MATERIALS AND METHOD.....15**

**3.1.1 Isolation of the pathogens .....15**

**3.2 Identification of the pathogens.....15**

**3.3 Growth rate of the pathogen .....15**

**3.3 Effects of botanicals..... 16**

**3.3.1 Sample preparation.....16**

**3.3.2 Collection of plant samples .....16**

**2.5 Statistical analysis procedure.....16**

**REFERENCES .....18**