

# Use Of Amino Oligosacharins And Alternaria Fine Protein In The Management Of Crown Gall Disease On Roses

**Emmanuel W. Atsango**

*Department of Plant Science and Crop Protection, University of Nairobi, P.O. Box 29063- 00625, Nairobi Kenya*

**William M. Muiru**

*Department of Plant Science and Crop Protection, University of Nairobi, P.O. Box 29063- 00625, Nairobi Kenya*

**Agnes Mwang'ombe**

*Department of Plant Science and Crop Protection, University of Nairobi, P.O. Box 29063- 00625, Nairobi Kenya*

**Liu Gaoqiong**

*Department of Crops Horticulture and Soils, Egerton University, P.O Box 536 Egerton Kenya*

**Researchjournali's Journal of Agriculture** Vol. 7 | No. 1 January | 2020 2

## **ABSTRACT**

Rose (*Rosa hybrida*) production is limited by a variety of factors such as poor mineral nutrition and high salinity, pests and diseases. Crown gall disease caused by *Agrobacterium tumefaciens* causes a significant damage to roses in Kenya. The study was carried out in Winchester farm (Nairobi) and Bahati farm (Nakuru) to determine the effects of a mixture of amino oligosaccharins and *Alternaria* fine proteins on crown gall disease on roses. The experiment was carried out on rose variety Mariyo in a Randomized Complete Block Design with four replications. The treatments comprised of different rates 0.5, 1, 1.5g per litre of water of the product at 3% concentration applied as foliar spray and a commonly used product in the market (Mastercop) applied at 2ml/ litre as the standard and water as a negative control. Crown gall tissues were collected from four different roses per treatment in the two sites, counted and used for biochemical tests in Kabete laboratory. Bacteria were isolated by culturing and the representative colony types growing on nutrient agar media selected and sub-cultured by successive streaking on nutrient agar media. The biochemical test for the different isolates was done to identify the bacterial isolates. Application of the mixture of amino oligosaccharins and *Alternaria* activated protein at the rate of 1.5g/litre had significant effects on galling formation and reduced the numbers significantly in both farms. The gram reaction indicated that the selected isolates were gram negative and were positive for motility, catalase, oxidase, lactose, mannitol, and salt tolerance tests. There was a significant reduction in the number of galls and size following the application of amino oligosaccharins and *Alternaria* fine proteins as well as improvement in plant growth. The ability to manage the disease can be attributed to enhanced defense enzyme activity enhanced by amino oligosaccharins and *Alternaria* fine proteins.

**Key words:** Chitosan, Oligosaccharins, Rose Shoots