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The efficacy of sterilizing agents, copper oxychloride, vegetable oil and agrowipe (botanic neem extract) against crown gall disease of roses in Kericho, Kenya

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Abstract

The experiments were conducted at James Finlay Kenya, flowers division Tarakwet farm in Kericho county from January 2016 to December 2016 to study the efficacy of copper oxychloride 1.0 g/L, hydrogen peroxide 1.0 mL/L, dettol 0.5 mL/L and 1.0 mL/L, agrowipe undiluted and fresh fri undiluted as control agents of crown gall disease in roses. Crown gall causes losses of between 75-95% on susceptible rose varieties hence the need to develop effective control strategies. Results showed plots treated with agrowipe and fresh fri had higher yield of roses, which were of better quality, longer, heavier and also inhibited growth of crown gall tumors and fresh crown gall growths compared to copper oxychloride at 1.0 g/L and untreated control. Dettol at 0.5 mL/L, 1.0 mL/L and hydrogen peroxide 1.0 mL/L had moderate yield of roses and crown gall control. Similar results were observed in the pot trials. Agrowipe and fresh fri effectively controlled crown gall diseases hence were recommended for use in controlling crown gall disease in roses in Kenya.

Keywords: Agrowipe, Crown gall, Control agents, Tumor, Roses

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1. Introduction

Physical agents such as heat and ultraviolet light, chemical agents such as disinfectants and antibiotics have been used to prevent bacterial contamination and spread (Hauser, 2013). Disinfectants are chemical substances that kill or retard growth of microorganisms while antibiotics are substances produced by living microbes that inhibit growth of microbes (McManus and Stockwell, 2001). Bacteria strains resistant to copper compounds are common, in addition copper compounds can also be phytotoxic on certain plant species (Alsup, 2004). Natural products also known as botanical pesticides which exhibit antimicrobial activity have been used for a long time in controlling microorganisms causing plant and human diseases (Mitali et al., 2012). Kenya is now a lead exporter of cut flowers to the European Union with a market share of about 38% (Kenya Flower Council, 2019). In 2018, the export of flowers from Kenya earned the country Ksh.113.16 billion up from Ksh.

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