INTRODUCTION

Nosocomial infection is an infection acquired by a patient in a hospital or other health care facility that was not present or incubating at the time of admission or that was the residual of an infection acquired during a previous admission. Nosocomial infections have been recognized for over a century as a critical problem affecting the quality of health care and a principal source of adverse health care outcomes. Today, nosocomial infections account for 50% of all major complications of hospitalization; the remainder are due to medication errors, patient falls and other non-infectious adverse events **(WHO , 2002).**

Nosocomial infections are commonly caused by bacteria. Nosocomial infections can also be caused by viruses, fungi, and parasites, but these types of infection occur less frequently, especially those caused by parasites (e.g., scabies), and often do not carry the same risks of morbidity and mortality as bacterial infections. Viral nosocomial infections are more common in children than in adults and carry a high epidemic risk. Fungal nosocomial infections frequently occur during prolonged treatment with antibiotics and in patients who have compromised immune systems **(Engl, 2003).**

Different antibiotics are used to minimize nosocomial infection **(MacLaren, 2005)**. Also essential oils have been traditionally used for treatment of infections and diseases all over the world for centuries . Thymol, carvacrol, linalool and eugenol are main constituents of some plant essential oils that have been shown to have a wide spectrum of activity against microbes (**Rois and Recio, 2005)** .

Different types of radiation used for controlling nosocomial infections, UV radiation ranges from 200–280 nm, called germicidal range at this dose it effectively inactivates the microorganisms growth. The germicidal properties of UV irradiation are mainly die to DNA mutations induced through absorption UV light by DNA molecules (**Wang *et al* ., 2006**).

Gamma irradiation strongly reduced the colonies of various bacterial isolates, gamma irradiation at 4 KGy sterilized phase population of both *S.aureus* and *E. coil* (**Osterholm and Norgan , 2004**). Also X rays is a novel technology for produce decontamination and result in high microbial reduction (> 6 log reduction) for pathogen on various food products including oysters **(Mahmoud and Burrage, 2009)**.

Different essential oils capable of change the ultrastructure of bacterial cells also it was found that scanning and transmission

electron microscopy observations reveal cell ultra structural alterations in several parts such as plasma membrane, cytoplasm (swelling, shrivelling, vacuolations, leakage) and nucleus **(Santoro *et al*., 2007).**