

**Title** Effects of thyme essential oil on microbial loads and polyphenol oxidase activity of minimal processed carrot

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### **Abstract**

Consumer demand for convenient and ready to use food that requires minimum effort and time for their consumption lead to made of industrials for produce a minimal processed products. The main issues in the manufacturing of these products to remove infectious agents (bacteria) these products. Manufacturing these products to consumers looking to replace the natural antimicrobial agents, rather than synthetic (chemical) disinfectants. In this study the effect of different levels of garden thyme essential oil (0, 250, 500 and 1000 ppm) along with packaging in modified atmosphere (5% O<sub>2</sub>, 5% CO<sub>2</sub> and N<sub>2</sub> 90%) and five times storage (4, 8, 12, 16 and 20 days) on total count of microorganisms and total yeast and mold and polyphenol oxidase activity of minimal processed carrot cultivar Vilmorin were investigated. The survey results showed that with increasing storage time, total count of microorganisms and mold and yeast increased while with increasing storage time polyphenol oxidase activity decreased levels used of thyme essential oil to control (level 0) to dramatically reduce microbial contamination on fresh-cut carrots. The best antimicrobial effect for reduce of total count of microorganism related to the level of 1000 ppm and for reduce of yeast and mold related to the level of 250 and 1000 ppm thyme essential oil. Lowest polyphenol oxidase activity was related to the level of 1000 ppm essential oil.