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Identification of *bacillus* sp in fresh and refrigerated vegetables

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Bacillus sp contamination was studied in samples of tomato, carrot and onion which are used commonly as ingredients to manufacture processed foods. *Bacillus* sp has been found to be the most prevalent pathogenic bacteria in fruits, cereals and vegetable products. They are present even in refrigerated vegetables. This bacterium is reported to be responsible for several food borne disease outbreaks in restaurants where fast food is often prepared. Therefore the objective of this study is to identify the different *Bacillus* sp in vegetables and onion which are commonly used in processed foods. Three samples each were taken from tomato, carrot and onion and used for this study. The preliminary tests such as gram staining, spore staining, motility test, catalase test and oxidase test showed the presence of *Bacillus* sp. Then using the biochemical tests such as growth of bacteria in nutrient broth at different temperatures, citrate test, Voges Proskauer test and casein hydrolysis the *Bacillus* was identified to species level. Confirmatory tests mainly the beta haemolysis and urease test were carried out to confirm the identified species. Standard keys designed by S.T. Cowan were used for the identification. The results showed the presence of *Bacillus pantothenicus* in fresh tomatoes and *Bacillus circulans* and *Bacillus firmus* in refrigerated tomatoes. *Bacillus coagulans* and *Bacillus sphaericus* were present in onions and *Bacillus megaterium* was present in fresh carrot. Refrigerated carrot didn't show the presence of any of the *Bacillus* sp. Further studies have to be conducted to examine whether the processed foods prepared from fresh and refrigerated vegetables are safe for consumption.

Keywords: *Bacillus* sp*,* carrot, tomatoes, onion, spoilage