Title of the dissertation: "Studies on minimal processing of carrot (*Daucus carota*), radish (*Raphanus sativus*)and green pea (*Pisum sativum*)"
Name of supervisor: Dr. Charu Lata Mahanta
Name of the student : Lipika Koushik
Roll no: FPT07005
Department of Food Processing Technology

ABSTRACT

. The present study was conducted with three different vegetables grown in Assam, namely, carrot (*Daucus carota*), radish (*Raphanus sativus*)and green pea (*Pisum sativum*). Minimal processing was done at ~4°C with two different dip treatments of 0.7mM sodium hypochlorite with and without 0.09M calcium chloride, peeled and cut with two different knives, stainless steel knife and iron knife and stored at 4°C in two different packaging materials, high density polypropylene (HDPP) and low density polypropylene (LDPP). The vegetables were analyzed for their changes in physical characteristics of color and texture, nutritive value, and microbial load during storage. Changes in physical characteristics like color and texture was observed in both the packaging materials. Colour intensity of carrot slices reduced during storage. Radish and green pea also showed mild color changes. Mild softness in the texture of the vegetables was observed on the 6^{th} day of storage and therefore it was acceptable till 5^{th} day of storage. Average loss of water activity was 22.4% in carrot, 34.3% in radish and 21.0% in green peas stored in HDPP while the loss was 19.0%, 31.7% and 17.0%, respectively in LDPP. No change in protein, crude fiber and ash was observed. An average loss of ascorbic acid in LDPP was found to be 24% in carrot, 21% in radish and 45.3% in green pea compared to 20.6% in carrot, 13.5% in radish and 20.1% in green pea in case of HDPP during 6 days of storage. Minimally processed vegetables with sodium hypochlorite and calcium chloride dip treatment showed less microbial growth compared to dip treatment of sodium hypochlorite alone. Both stainless steel and iron knives, however, had no effect in the quality of the vegetables. It can be concluded that HDPP shows better performance as a packaging material of minimally processed carrot, radish and green peas. From the microbiological point of view sodium hypochlorite with calcium chloride was found to be better dip treatment than sodium hypochlorite alone.