

## **Characterization of *Pectobacterium carotovorum* subsp. *carotovorum* as a new disease on lettuce in Malaysia.**

### **ABSTRACT**

Malaysia produces many varieties of vegetables. The Cameron Highland in the state of Pahang is the main area for lettuce (*Lactuca sativa* var. *romana*) production. A survey recently identified *Pectobacterium* spp. was responsible for more than 15 % damage to lettuce both in the field (including greenhouses) and storage. Isolates of *Pectobacterium carotovorum* were collected from different greenhouses and fields and analysed in the laboratory during 2010. Nine isolates were purified and characterised by morphological, biochemical and molecular methods. Pathogenicity studies on lettuce using 4 strains showed there was a high susceptibility to the *P. carotovorum*. PCR amplification with Y1 and Y2 primers (specific for *P. carotovorum* subspecies) produced the expected band of 434 bp. PCR amplification of the intergenic transcribed spacer region (ITS) using G1 and L1 primers also resulted in the expected two bands (535 and 580 bp). Based on these biochemical and physiological characteristics, PCR based *pel* gene, characterisation of the ITS region and digestion of the ITS-PCR products with *RsaI* restriction enzyme, all isolates were identified as *P. carotovorum* subsp. *carotovorum*. This is the first record of the bacterial pathogen causing disease on lettuce in Malaysia.

**Keyword:** Vegetables; Detection; Identification; Bacterial disease.