Abstract
Ionizing radiation is an effective process for disinfecting and prolonging the shelf-life of several food products. Food irradiation may be one of the most significant contributions to public health in the developing countries. Following the irradiation it is necessary to analyze the radiation dose effects in foodstuffs. Thermally stimulated luminescence (TL) properties and microbiological load as a function of the gamma doses were analyzed in fresh commercial Coriander (Coriandrum sativum L.) samples. For TL analyses the polymineral fraction was separated from coriander and 10 /µm size particles were selected. The polymineral samples were exposed to a 0.5-15,000 Gy dose from gamma radiation using a 60Co facility, Gammabeam 651PT, semi-industrial irradiator with 98.4 Gy/min dose rate. The glow curves were broad bands and characteristic of quartz that is present in the sample as detected by XRD. The main TL characteristics were determined, including the structure of the glow curves, TL response, reproducibility of TL signals over 12 cycles of subsequent irradiations, and the fading effect during the storage during 30 days. The TL method was found useful for detection of irradiated coriander. In order to analyze the effect of gamma radiation on the bacterial load in the fresh food coriander, several coriander samples were exposed to 0-10 kGy dose. It was observed that at 0.5 kGy dose the aerobic mesophilic count was reduced to 99.9 %, while the initial total coliform bacteria decreased from 871,000 cfu/g to less than 100. The microbiological results are lower than the limit indicated by the Mexican regulatory authority; 150,000 cfu/g for mesophiles and 100 cfu/g for total coliforms. The aim of this work is to investigate the TL properties of the polymineral fraction obtained from coriander and to measure the microbiological load as a function of the gamma irradiation dose also.

Keywords
Food irradiation, coriander, polymineral fraction, radiation effects.