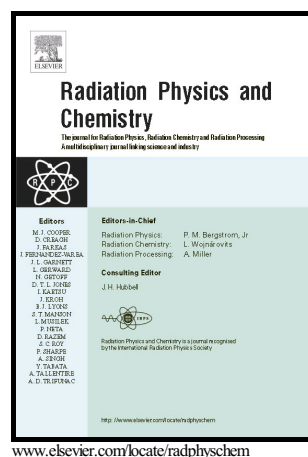


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ABSTRACT

Fresh blueberries (*Vaccinium* spp.) are considered one of the richest sources of phenolic compounds and are appreciated for their high antioxidant capacity. But they are hosts in Argentina of the quarantine pests *Ceratitis capitata* and *Anastrepha fraterculus*, and have to be treated to avoid its spreading. Irradiation is being introduced in the Agricultural World trade, increasing exponentially on the last years. In order to guarantee the success of this process, it is required previous to the rutinary treatment, to define the irradiation dose range to be applied. The minimum dose for these pests has been already approved in the IPPC standard 28. The maximum dose depends on the tolerance of the fruit cultivars, maturity, pre-harvest conditions, harvest time, storage conditions, and interactions among these factors. The postharvest quality of Argentina's blueberry treated with irradiation doses of 150 (generic quarantine dose used for fruit flies) and 300 Gy (to evaluate tolerance) was evaluated. The studies included blueberries from different harvest seasons (2009 to 2012). Misty, O'Neal and Emeral varieties were chosen, because they represent the biggest volume of exported blueberry from Argentina. The results indicated that irradiation at 150 Gy and 300 Gy did not significantly affect the postharvest quality and slightly improved shelf life of the different blueberries varieties. Therefore, it is possible to use irradiation as an alternative quarantine treatment for Argentina's blueberries, establishing a dose range appropriate to be applied on a commercial irradiation facility.

Keywords: Blueberry; Irradiation; Quarantine treatment; Quality Attributes

1 INTRODUCTION

Blueberries are considered one of the richest sources in phenolic compounds and appreciated for their high antioxidant capacity (Prior et al., 1998) which exhibit a wide range of biological, pharmacological and chemoprotective properties that prevent cancer and reduce mortality due to cancer and heart diseases (Lee and Wrolstad, 2004; Wu et al., 2004, Xuetong, 2005).

The blueberries also are significant sources of anthocyanins, natural pigments which are responsible for the blue, purple, violet, and red colors of fruit (Lohachoompol et al., 2004).

According to Argentinean blueberry committee in 2016, a record of 17,100 tonnes was exported, 15% more than the 2015 campaign. The United States (62%), the United Kingdom (16%), the European Union (13%) and Canada (5%), concentrate Argentine exports of fresh blueberries (average 2010-2015).

Argentine Blueberries are hosts for *Ceratitis capitata* (Mediterranean fruit fly) and *Anastrepha fraterculus* (South American fruit fly). National Service of Agri-Food Health and Quality (SENASA) requires the application of a quarantine treatment (SENASA regulated treatments: methyl bromide or cold) for the movement of

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