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Determination of Paclobutrazol in Mango by LC/MS/MS System

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The mango is the tropical fruit that is most produced in the world, being approximately 50% of all tropical fruits produced. It is an important agricultural product for the economy of the developing countries in the tropics and Brazil is the third largest mango exporter, after Mexico and India. A large percentage of Brazilian mangos is produced in the semiarid zone of the northeast region of Brazil, in the irrigated fruit agriculture of the São Francisco River Valley. Paclobutrazol is a plant growth regulator used in the irrigated mango generally applied annually as root for the enhancement of a plants reproductive growth. The aim of this work was to develop and validate method for the determination of paclobutrazol in mango. The extraction was made with methanol and the analyses by high performance liquid chromatography LC/MS/MS (Varian) triple quadrupole. The ionization technique was ESI in positive ion mode, using column C-18.The following validation parameters were obtained: limit of detection of method 0.25 $\mu g.Kg^{-1}$, limit of quantification of method 1.25 $\mu g.Kg^{-1}$; $r^{2\,3}$ 0.995; recoveries from 82 to 94%; intermediary precision (%RSD) < 15%. The method showed efficient and reliable for determination of the pesticide in mango. LCMSMS analysis no showed presence of paclobutrazol residues in samples of mango from São Francisco River Valley. Thus these results indicated that use of paclobutrazol in mango continuously at recommended doses may not result in its residues in mango fruits at harvest at levels which may pose any risk to human health. However, in areas where paclobutrazol is applied regularly, there may be risk of environmental contamination due to its residues persisting in soil for a very long time.