DEVELOPMENT AND VALIDATION OF A METHOD FOR ANALYSIS OF CARBOSULFAN RESIDUES IN TEA (*Camellia sinensis*) USING LC-MS/MS TECHNIQUE

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ABSTRACT

Pesticide residues in made tea is a major issue in the tea sector as a result of field application of pesticides without following any precautionary measures. However, tea consumers in globally are highly health concerned. Hence, it has come a need of the day to assure the tea consumers that our made tea is free of any pesticide residues. Therefore introducing an appropriate method for determination of these residues in made tea is timely important. In this study, a method for the determination of Carbosulfan in made tea was developed and validated. The tea sample was extracted by acetonitrile and Synergy 4u fusion column followed by liquid chromatography coupled to tandem mass spectrometry (LC–MS/MS) with multi-reaction monitoring (MRM) mode. The method was validated according to the linearity, precision, and the percentage of recovery at three different spike levels. The linear concentration range used was 1-50 ppb, the square of Correlation coefficient r^2 was 0.999. Recoveries were adequate being in the acceptable range of 60-140% and RSD of <20% for all the analytes at three level of 8 ppb, 20 ppb and 40 ppb, the LOQ of Carbosulfan is 0.005ppm. Hence the current method can be applied for the determination Carbosulfan residues in black tea.

Keywords: Made tea, Pesticide residues, Carbosulfan, QuEChERS method, LC-MS/MS technique, Method validation