TRA/TLABS/162/2024   19th **November 2024**

TRA Tocklai Validation Certificate

Equipment: Rapid Screening Device for Pesticide Residue Detection

Model: ACLIVIA

Manufacturer: Arogyam Medisoft Solution Pvt. Ltd.

Validation Date: 27.08.2024-20.09.2024

Purpose: To validate the capability of the ACLIVIA device to detect Acephate, Dinotefuran, Acetamiprid, Imidacloprid, and Fipronil residue in green leaves.

Validation Process:

The analytical performance of ACLIVIA has been studied using aqueous standards and green tea leaves for the rapid detection of Acephate, Dinotefuran, Acetamiprid, Imidacloprid and Fipronil at the Tea Research Association, Kolkata laboratory (TLabs, Kolkata). The results were compared with the results from LC-MS/MS. FSSAI Hand book on Rapid Analytical Food Testing (RAFT) Vol 1.0 (Guidelines for the Verification of RAFT KIT/ Equipment/Method) has been referred for establishing the analytical benchmark & statistical analysis.

Method of Analysis:

Instruction for Rapid Analysis of Acephate, Dinotefuran, Acetamiprid, Imidacloprid Residue in Fresh Tea Leaf was followed as laid down in SOP2 /V.1.0/16-09-2024 of Arogyam instruction manual. SOP3 /V.1.0/16-09-2024 was followed for analysis of Fipronil residue in green tea leaf.

Results:

97 tests were performed using the aqueous standard solution and non-sprayed as well as spiked green tea leaves for 4 weeks by multiple operators in the measuring range of 0 – 0.1 ppm. To study the effect of other pesticides molecules, analytical solutions of Dimethoate, Hexythiazox, Novaluron, Flubendamide, Hexaconazole, Glyphosate, Paraquat, Azoxystrobin, Emamectin benzoate, Ethion, Carbamate, 2,4-D, Saflufemacil, Paraquat and Cypermethrin were tested along with the pesticides under test. Outcomes of the study were found as follows:

Matrix	LOD*	Specificity	Sensitivity	Accuracy
Green Tea Leaf	5 ppb	97.7%	94.4%	96.6%

*LOD: Limit of Detection

Conclusion:

The device successfully determined (qualitatively) Acephate, Dinotefuran, Acetamiprid, Imidacloprid, and Fipronil residue at 10 ppb in green tea leaf samples. The results are consistent and reliable under controlled conditions. For quantitative assessment, the sample needs to be tested in an accredited laboratory.

Dr. B. Kanrar
Scientist C

Dr. A. Babu
Director

J. Phukan
Secretary

TRA/TLABS/105/2024   12th July 2024

TRA Tocklai Validation Certificate

Equipment: Rapid Screening Device for Pesticide Residue Detection

Model: ACLIVIA

Manufacturer: Arogyam Medisoft Solution Pvt. Ltd.

Validation Date: 20.06.2024 - 05.07.2024

Purpose: To validate the capability of the ACLIVIA device to detect Monocrotophos residue in green leaves up to 10 ppb.

Validation Process:

Analytical performance of ACLIVIA has been studied on aqueous standard and green tea leaf for rapid detection of Monocrotophos at Tea Research Association, Kolkata (TRA Tocklai) laboratory (TLabs, Kolkata). The results were compared with the results from LC-MS/MS. FSSAI Hand book on Rapid Analytical Food Testing (RAFT) Vol 1.0 (Guidelines for the Verification of RAFT KIT/ Equipment/ Method) has been referred for establishing the analytical benchmark & statistical analysis.

Results:

330 tests were performed using aqueous standard solution and non-sprayed as well as spiked green tea leaves for 2 weeks by multiple operators in the measuring range of 0 – 1 ppm. To study the effect of other pesticides molecules, analytical solution of Ethion, Cypermethrin, Hexythiazox, Acetamiprid, Fipronil, Dimethoate, Carbamate, Acephate, Flubendiamide, Novaluron, Imidacloprid, Hexaconazole, Dinotefuran, 2,4-D, Saflufemacil, Paraquat and GC mix containing around 50 different pesticides, LC mix containing eight pesticides (Acephate, Dimethoate, Imidacloprid, Acetamiprid, Dinotefuran, Hexythiazox, Emamectin benzoate, Abamectin) were tested along with the Monocrotophos. Outcome of the study were found as follows:

Matrix	LOD*	Specificity	Sensitivity	Accuracy
Green Tea Leaf	5ppb	98.12%	94.28%	97.43%

*LOD: Limit of Detection

Conclusion:

The device successfully determine (qualitatively) Monocrotophos residue at 10 ppb in green tea leaf samples. The results are consistent and reliable under controlled conditions. For quantitative assessment, the sample needs to be tested in an accredited laboratory.

Dr. B. Kanrar
Scientist C

Dr. A. Babu
Director

J. Phukan
Secretary