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# SUMMARY

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| Experienced Analytical Chemist, with 4 years of academic and professional experience in Analytical testing. skilled at interpreting regulatory guidelines, troubleshooting systems, and ensuring QA/QC compliance. Experienced in analyzing and clearly presenting scientific data in a statistically meaningful manner fulfilling efficient R&D, Marketing/Sales and Production operations. |
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| SKILLS  |  |  |  |  | | --- | --- | --- | --- | | Lab equipment | Software and Data analysis | | Regulatory Compliance | | Agilent HPLC (1100,1200)Agilent GC-FID (6890N)Agilent GC-MS (5977)Agilent ICP-MS(QQQ) (8900)Waters Alliance e2695Heracles E-nose (GC-FID)Bruker MPA NIR spectrometerMettler-Toledo (Water Activity analyzer, Moisture Analyzer, pH Meter, Loss on Drying Vacuum Oven) | ChemstationLabware (LIMS)EmpowerBruker OPUSElevated Signals (QMS)Salesforce Rootstock (QMS/IMT)MS Office SuitePython, R Language, Shell Scripting, MS ExcelDesign of Experiments (DoE) | | Method development and validation protocols (IQ/OQ/PQ)SOPs/STPs developmentGPP/GMP/GMP, USP/EP ComplianceStability Studies (Long Term, Intermediate, Accelerated)Change Control ManagementRoot Cause Analysis for Deviation/Non-Conformance Investigations (OOS/OOT)ICH Guidelines (Q2, Q3, Q7)Batch Record Review & ComplianceCanadian Province Specific ComplianceISO 17025WHIMS/CAPA | | Analytical Chemistry | | | | | HPLC  |  | | --- | | Potency TestingPesticide ScreeningAflatoxin TestingDissolution Testing (Infused Products) | | | ICP-MS  |  | | --- | | Heavy Metals (As, Cd, Pb, Hg)Trace elements Detection |  NIR  |  | | --- | | Moisture AnalysisCannabinoid Screening (Rapid and non-destructive potency estimation)Homogeneity Testing (Infused edibles, Topicals, Balms) | | | | GC-MS, GC-FID  |  | | --- | | Terpene Profiling (α-Pinene, Limonene, Myrcene, etc.) (64 Terpenes)Residual Solvents (Butane, Isobutane, Pentane, Propanol)VOC Analysis (Ethanol, Acetone etc.)Residual Pesticides | | |  EDUCATION **MSc Biotechnology** *December 2022*  *University of Windsor, Windsor, ON* Bachelor of Engineering in Biotechnology *May 2021* *National institute of technology, India* |

# WORK HISTORY

## **QC Analytical Chemist**

*Tilray Brands, ON* *December 2022- Present*

* Performed 50+ QC tests/week on **Oils, Isolates, Distillates, Concentrates, Emulsions, Extracts, Finished Goods, and miscellaneous Raw materials** using HPLC/GC/ICP.
* **Developed HPLC/GC methods** to detect pesticides and aflatoxins in plant-based products.
* Worked with external teams (subsidiary companies) for **method transfers and integrations** through industry standard method transfer protocols.
* Handled tight deadlines resulting to **TAT optimisation** and **client retention**.
* Collaborated with QA/R&D/Production teams to **develop CAPA guidelines** to ensure streamlined workflows.
* Developed **stability testing protocols (T=0 to T=24) (different packaging effects)** on water-based(topicals/balms) cannabis formulations, monitoring temperature/Humidity conditions.
* Led comprehensive training for **new employees and interns** on testing protocols, safety practices, and regulatory guidelines, ensuring team compliance and operational efficiency.
* Contributed to **technical reports and standard operating procedures** (SOPs).
* Regularly trained on most used techniques and equipments (**Bruker MPA NIR Training, HPLC/GC Trainings (Agilent, Waters, Heracles)**).
* Development of **Excel Databases** to analyse, track and visualise data to be used in scientific and stability studies (Thermo-scientific chambers, Caron Stability Chambers) for marketing/sales teams.
* Performed regular **calibrations and maintenance** of HPLC, GC, NIR (including the injectors, columns, pumps, Purge valve, UV-Vis/ Fluorescence Lamps etc.)

**Biotech Analyst**

*Rapture Biotech, India*  *January 2020- July 2021*

* Conducted water quality studies using **biochemical assays (BOD, COD)** and microbial isolation techniques.
* Performed microbial contamination testing through **serial dilution, spread plating, and membrane filtration techniques** to quantify total coliforms, E. coli, and heterotrophic plate counts.
* Optimized **DNA extraction protocols** from environmental water samples for PCR-based pathogen detection.
* Designed and executed experiments to investigate various biochemical and microbiological processes using **spectrophotometry and fluorometry** for data analysis.
* Operated and maintained key instruments like **Bioluminescence Readers, Centrifuges, and Autoclaves** for experimental assays and sample preparation.

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| **Microcontroller applications** | 1. Used ESP32 microcontroller to automate the data collection for the study of growth analytics recording the change in pH, Humidity and gravimetric weight. **- Agrico, India** 2. Working on low-cost handheld spectrophotometers (UV-Vis) using ESP32 for cannabinoid screening. -**Personal Project** |
| **Stability Protocol** | 1. Developed Stability protocol for Topicals/Balms to account for water separation issues under different humidity and temperature conditions. -**R&D, Tilray** 2. Contributed to the disintegration stability data presentation for Finished Goods to prove increased shelf life resulting in higher sales. – **Marketing/Sales Team, Tilray** |
| **Method Development** | 1. Developed non-destructive method to analyze fresh cannabis at different harvest stages to optimize harvest cycle using MPA NIR.  **- Grower Team, Tilray** 2. Developed methods to analyze Aflatoxins (Fluorescence, HPLC), Volatile Pesticides (GC), Terpenes (Resolution [64 peaks]). **- QC, Tilray** 3. Working on Interference studies, disintegration studies and Dissolution problems for Emulsions/topicals/Balms and other finished Goods **- R&D, Tilray** |

**PROJECTS**