Opportunity Title: USDA-ARS Physical Sciences Research Internship
Opportunity Reference Code: USDA-ARS-2022-0390

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0390

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.
  Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 11/9/2022 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis.**

ARS Office/Lab and Location: A postdoctoral research opportunity is currently available with the Natural Products Utilization Research Unit (NPURU) within the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), National Center for Natural Products Research located in Oxford, Mississippi.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The Natural Products Utilization Research Unit (NPURU), USDA-ARS, residing at the National Center for Natural Products Research on the campus of the University of Mississippi, is a research laboratory focused on the discovery of natural products and their application in agriculture. As the number of pesticide-resistant weed and fungal species are rapidly rising, the demand for new sustainable sources of compounds with pesticidal activity is greatly needed. At NPURU, a pipeline for discovery and development of natural products as biopesticides involves determining the chemical composition of natural products and testing their phytotoxic properties. This strategy enables the identification of potentially promising lead compounds and further investigation on their

mode-of-action.

To generate and analyze data for this purpose, we are now looking for a postgraduate to assist our research team. The participant will collaborate with a team of scientists involved in essential oil analysis as biopesticides. Towards this end, the participant will be trained in techniques for Kovat /Retention index analysis of essential oils using GC/MS/FID analysis. The participant will also be involved in phytotoxicity evaluation of essential oils against monocot and dicots as potential new herbicides and antifungal evaluation of essential oils as potential new fungicides. Further investigation involves bioassay-guided fractionation of select essential oils found to possess pesticidal properties and the identification of lead compounds.

Learning Objectives: Through the course of active involvement in the research project, the participant will gain valuable experience which will strongly support their future research career in the agroindustry or academia.

Mentor(s): The mentor for this opportunity is Charles Cantrell (charles.cantrell@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: February 2023. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for three months but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email USDA-ARS@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a master's degree in one of the relevant fields or be currently pursuing the degree with completion

Opportunity Title: USDA-ARS Physical Sciences Research Internship
Opportunity Reference Code: USDA-ARS-2022-0390

before May 31, 2023. Degree must have been received within the past ten months.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree received within the last 10 months or anticipated to be received by 5/31/2023 12:00:00 AM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 👁)
  - **Life Health and Medical Sciences** (1 👁)