Postdoctoral position: UMR PAM, Dijon, France

Characterization of sulfite combination on the measurement of SO_2 fractions in wine

Funding: ANR SUMO project

Project context: This postdoctoral position is funded by the French National Research Agency (ANR) through the SUMO project and will be hosted by the Physico-Chemistry of Food and Wine (PCAV) team at UMR PAM, Dijon, France. In response to growing consumer expectations for wine quality and more sustainable winemaking practices, SUMO aims to improve the precise measurement of sulfite fractions (free and total) in wine.

Rapid and accurate measurements are essential for efficient control of sulfite addition. Current methods can be time-consuming and laborious, while rapid approaches may be difficult to apply reliably to complex wine matrices. SUMO seeks to develop sensitive, cost-effective and user-friendly sensors for real-time monitoring of sulfite concentrations in wine.

Preliminary work has highlighted complex sulfite binding and release processes, which lead to inconsistent results depending on the measurement method used. The postdoctoral researcher will be in charge of characterizing the impact of mechanisms of sulfites combination on analytical measurements, providing a scientific basis for reliable sulfite monitoring in wine.

Scientific objectives: Investigate sulfite binding and release mechanisms as a function of physicochemical parameters and wine composition. Compare model wine systems with real wines and assess the transferability of analytical results and adapt protocols to complex matrices.

Research activities and methods: The successful candidate will design and conduct time-resolved experiments in model wines and comparative studies in real wines. The work will combine wine chemistry with analytical method development to investigate free and bound sulfites and the compounds involved in binding reactions or analytical interferences. Chromatography / mass spectrometry will be used, as appropriate to the target compounds and sample preparation requirements, alongside complementary conventional analytical methods for sulfite determination. The researcher will work closely with the SUMO team and disseminate findings through international scientific publications and presentations at scientific conferences.

Host team: UMR PAM (Food and Microbiological Processes) is a multidisciplinary research unit bringing together expertise in food/wine science, physical chemistry, microbiology and food processing. Its PCAV team specializes in physical chemistry and chemistry applied to food and wine, including product formulation, chemical and physical stability, and the evaluation of quality and performance. The team provides an analytical platform for studying food, wine and packaging, and maintains collaborations with public and private partners. This position offers an interdisciplinary environment at the interface of analytical chemistry, physical chemistry and wine science, with opportunities for scientific collaboration within a multidisciplinary research team.

Candidate profile: Applicants should hold a PhD in analytical chemistry, physical chemistry, food or wine chemistry, or a closely related discipline. An interest in oenology and previous experience in chromatographic method development would be appreciated. The following skills and qualities are required: motivation, teamwork, curiosity, organization, and communication.

Application deadline: November 30, 2026, for a start date of January 4, 2027.

Application procedure: Please send a single PDF containing a full CV, a cover letter explaining your motivation for the position, two recommendation letters or the contact details of two referees, a publication list, and your PhD degree certificate.

Contacts: Applications should be sent to:

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