

JUNIOR PROFESSOR CHAIR

Tenure track position in “Chemistry for research and innovation in cosmetics” at the UNIVERSITY of ORLEANS (UO), FRANCE

Key Words : Bioactive ingredients, vectorization, activity and safety, analytical chemistry, Chemical biology

Time : 4 years with financial support then the candidate will have the possibility to obtain a full professor position at the University of Orleans

Scientific Topic : Chemistry

Section (s) CNU/CoNRS/CSS: CNU group 31, 32, 33

Context

The Region Centre Val de Loire (CVL) has placed research and innovation in cosmetics at the heart of its Regional Strategy for Innovation. Leader in this sector, the Region counts more than 150 cosmetic companies, supported the creation of the Cosmetic Valley competitiveness cluster, leads network of manufacturers in the sector and initiates, with Lombardy, the Go4Cosmetics European platform for digital and ecological transition. In 2015, the Region CVL launched the Cosmetosciences Research & Development Ambition programme led by the University of Orléans in partnership with the University of Tours, the CNRS, Cosmetic Valley and Le Studium, which today brings together 11 research laboratories et 23 research teams with recognised skills in varied fields, from phytochemistry to biotechnological sourcing, the development of eco-friendly extraction processes, the characterisation of plant extracts, the formulation and encapsulation of active ingredients, cutaneous biology and the use of new technologies to evaluate the activity and control the safety of active ingredients in cosmetics.

The University of Orleans welcomes more than 19,000 students, including 14% of foreign students. The University of Orleans is part of the European University ATHENA, an alliance of nine higher education and research establishments and was awarded the “Human Resources Excellence in Research” HRS4R label. The University’s capacity for innovation is reflected in the dynamism of its research and technology transfers to regional, national and international companies. The Orléans Campus benefits from an ecosystem of scientific excellence with 25 research units.

Leader of the Cosmetosciences program since 2015 and of the Campus of trades and qualification for cosmetics and health industries since 2021, the University of Orleans wants to strengthen its research and teaching skills in cosmetics. At present, the skills developed at the University of Orleans focus mainly on plant biology and chemistry with the development of indoor and *in-vitro* plant culture, plant biotechnology, development of eco-extraction methods using natural green solvents and eco-

responsive process, extract characterisation with targeted and non-targeted metabolomic approaches, organic synthesis to develop molecular probes to evaluate ingredient toxicological profile, and predict any interactions between the ingredients of a formula. Skills on characterization of soft matter, the study of nanostructured systems and the encapsulation of active molecules are also developed.

Candidate Profile

The proposed research themes are deliberately open-ended, to allow the successful candidate to integrate into the host laboratory ICOA-UMR 7311. The candidate will be expected to promote research themes in the field of the cosmetic sciences based on the conception and design of new natural ingredients, chemical probes and methods enabling the understanding or prediction of biological mechanisms involved between cosmetic ingredients and skin. He/She may therefore propose projects related to one or more of the preferred themes evocated above that can cover the analytical chemistry, synthesis of chemical compounds and probes, the development of eco-extraction process, the development of innovative formulation and vectorisation systems as well as strategies leading to increase the safety and the prediction of biological properties. The use of natural or bio-inspired solvents that can be directly formulated, as well as the extraction or (bio)synthesis of molecules with texturizing properties, would enable to improve product naturalness indexes, develop innovative textures and implement innovative active ingredient formulation processes could be explored. In addition, the development of encapsulation and/or vectorization systems for the protection of sensitive natural active ingredients and the gradual and/or stimulated and directed delivery of active ingredients would improve product efficacy and safety could be a research theme to be implemented. These methodological developments will be supported by highly sensitive and selective chemical biology studies of skin interaction, penetration, metabolism and safety of bioactive ingredients for a better understanding of these mechanisms.

The candidate will be expected to establish a high quality, innovative and driving research program in order to meet the criteria for major national and international project calls such as Horizon Europe, European Research Council (ERC), French Research Agency (ANR) grants and will strengthen the relationships with various companies in the cosmetic sector.

The candidate will be able to integrate progressively new training in chemistry, formulation, characterization and natural ingredients at the University of Orleans.

French or foreign researcher or teacher-researcher can apply, with or without a position in a French university but with a good knowledge and a strong expertise in chemistry applied to cosmetics. The Junior Professor Chair will enable the University of Orleans to steer research projects in the field of Cosmetics, while at the same time consolidating the links between teaching and research and strengthening the bridge between academic and the industry through the academia-industry collaboration. Financial support of 200 k€ from the ANR and a teaching release will be granted to the person recruited to help him or her start up his or her research activities.

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