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ESPCI Paris



CiQUS Lecture

Natural Products and Derivatives: Targets and Catalysts. Development of Synthetic Methods

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CiQUS Seminar Room | 12:15 PM

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Abstract

Natural products are complex molecules that may have interesting biological properties, but are unfortunately produced in small quantities. One way of obtaining these compounds in large quantities is synthesis or hemi-synthesis. However, the main challenge in the synthesis of interesting biologically active molecules is the design of concise strategies and the use of efficient and chemoselective methods.

We will show that the development of methods using transition metal catalysts such as iron, cobalt and nickel, as well as ruthenium and rhodium, can solve the synthetic problems encountered during the synthesis of natural products, and that these methods can be used to access a diversity of heterocycles. We will also show that natural products can be used as catalysts, and that they can be good substitutes for expensive transition metal catalysts.

Biosketch

Janine Cossy's early career was spent in Reims (Champagne area), where she did her undergraduate and graduate studies at the University of Champagne-Ardenne, working on photochemistry under the supervision of Prof. Jean Pierre Pête. After a postdoctoral stay with Prof. Barry M. Trost, for two years at the University of Wisconsin (USA), she returned to Reims

where she became, in 1990, Director of Research at the CNRS. In the same year, she moved to Paris and, since 1990, she is Professor of Organic Chemistry at the ESPCI Paris. Her research activity resulted in more than 575 publications and 19 patents.

Among the awards, she received: the CNRS Bronze Medal (1987), the CNRS Silver Medal (1996), UK Royal Society Rosalyn Franklin International Lecturership awarded to internationally recognized women scientists (UK) (2005), Le Bel Award from the French Chemical Society (France) (2009). In 2015, she obtained the E. C. Taylor Senior Award. In 2018, she was nominated Fellow of the American Chemical Society (USA). In 2019, she received the award “IUPAC 2019 Distinguished Women in Chemistry or Chemical Engineering”. In 2024, she received the Lavoisier medal from the French Chemical Society. She was elected at the French Academy of Sciences in 2017 and to the National Academy of Pharmacy in 2022.

She is the co-funder of two companies: CDP-Innovation in 2003 and Acanthe Biotech in 2008. She was Organic Letters Associate Editor from 2005 to 2018 and since 2023 she is Tetrahedron Associated editor.

In 2013, she was nominated Chevalier de la Légion d’Honneur and promoted to Officier de la Légion d’Honneur in 2023.