

Application for a:	Outgoing Scheme NEWFELPRO Fellowship for experienced researcher
Proposal Acronym:	PomFree
Proposal Title:	Diligent search for chemical bio-sources: Solvent-free homogeneous and heterogeneous oxidation processes catalyzed by polyoxometalates
Research area(s):	Chemistry CHE
Research sub-disciplines:	Catalysis Homogeneous and heterogeneous catalysis Method development in chemistry Organic chemistry
Category of research:	basic
Duration in months:	16
Keywords:	homogeneous and heterogeneous catalysis, solvent-free, polyoxometalates, Merrifield resins, supports, renewable resources, fatty acids, terpenes, carbohydrates, sustainability
Abstract:	<p>The leading idea of the proposed project is promotion of clean, rational and safe production of chemicals by catalytic oxidation under solvent-free conditions. European Commission adopted a strategy to partially turn the economy towards the sustainable use of renewable resources (pure compounds extracted from biomass). So far, catalytic oxidations of renewables were usually performed in organic solvents or ionic liquids, producing high amounts of waste and by-products. New generation of catalytic processes aim to achieve new clean energy resources. The objective of this proposal is elaboration of an eco-friendly catalyzed oxidation process under solvent-free conditions using polyoxometalates (as catalyst) grafted on modified Merrifield resins, bringing together advantages of homogeneous (in terms of efficiency) and heterogeneous (in terms of facile recovery and recycling) catalytic processes. Terpenes, fatty acids and carbohydrates will be used as renewable substrates.</p>
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?	No