SiBeC2 – Smooth Integration of Biocatalysis Elements into Chemistry Curricula

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Project Summary

Despite a substantial amount of scientific evidence and a number of successful applications, the potential of biocatalysis is still largely untapped in the fine chemistry and pharmaceutical industries.

In Switzerland which is host to many companies in the field, this situation is due in part to a lacking integration of biocatalytic knowledge and practical skills in the chemistry curricula, be it in ETH/EPF, universities or UAS.

This observation was made at HEIA-FR and HES-SO Valais Wallis as well, and– based on their large community of interests - both schools decided to partner in order to develop teaching material and integrate it to the training of their respective students in chemistry and biotechnology, at both bachelor and master levels.

With a duration of 18 months and an overall budget of CHF 100'000.-, the SiBeC2 project (Smooth Integration of Biocatalysis Elements into Chemistry Curricula) will deliver teaching material with the following features and highlights:

- It will consist in a **coherent set of chapters under various forms** such as e.g. manuscript, presentations, exercises, quizzes, laboratory protocols …
- The teaching elements will be **based on existing material** which shall be up-graded and reformatted to suit the requirement for **state-of-the-art pedagogic approach**
- Additional information and documentation will be obtained through **numerous exchanges** with contacts from **industry, equipment suppliers, or other schools**
- The course material will be made available to both partner schools on the **HES-SO e-learning platform**, i.e. Cyberlearn
- The course will set a **clear focus on active learning and hands-on approach** (without giving up on traditional, frontal lecturing); this is in-line with the applied nature of training in UAS
- The laboratory sessions will provide an excellent opportunity to test **electronic lab notebook (ELNs)** at the HES-SO Valais, who shall profit from the experience of HEIA-FR in this field
- Thanks to its **modular nature**, the material can be implemented at different timings and to different degrees in each partner school, for example as a block or little by little depending on the local calendar or administrative constraints.
- The course material **can be taught in different contexts**: BSc, MSc and even **continuing education** (the latter would enable to directly approach target companies)
- The concept is **in line with the trend for green chemistry, sustainable processes**, natural ingredients, mild synthesis routes etc … and hence fully compatible with other courses in biotechnology or food technology