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SYNTHESIS OF OLIGOMERS OF RESVERATROL: IMPACT OF EXPERIMENTAL CONDITIONS

AUTHORS
Julien VINET / URD ABI, 3 RUE DES ROUGES TERRES, REIMS
Cédric PEYROT / URD ABI, 3 RUE DES ROUGES TERRES, REIMS
Amandine FLOURAT / URD ABI, 3 RUE DES ROUGES TERRES, REIMS
Florent ALLAIS / URD ABI, 3 RUE DES ROUGES TERRES, REIMS

PURPOSE OF THE ABSTRACT

Resveratrol is a naturally occurring compound found in many plants, such as vine, well-known for its anti-oxidant, anti-aging and anti-cancer properties. Thanks to its phenolic structure, resveratrol can undergo oxidative couplings that leads to the formation of different derivatives including dimers, trimers and oligomers. Such oligomerization has been proven to be an interesting way to improve the aforementioned biological properties.
Aiming at designing sustainable pathway allowing the efficient synthesis of innovative bioactive resveratrol-dimers for cosmetic applications, we have investigated, through a Design of Experiment (DoE), the influence of the oxidation conditions (i.e., temperature, concentration, reaction time and stoichiometry) on the structure and proportion of dimers/trimers/oligomers formed. Thanks to this DoE, optimal conditions were determined to favor the formation of delta-viniferin as well as oxistilbenin G and F, two dimers of great interest.
Building on these results, this optimized oxidation-based pathway has been implemented to access unprecedented oxistilbenin-like compounds in good yield and selectivity. Similarly, an innovative synthesis of piceid dimers could be set up.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

Resveratrol | Oligomers | Experimental conditions | Design of Experiment

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