



UNIVERSITÀ DEGLI STUDI DI PAVIA

DIPARTIMENTO DI SCIENZE DELLA TERRA E DELL'AMBIENTE

FORM PER PROGETTI BANDO DOTTORATO XXXIII CICLO

1. Project title

Exploiting the Pavia territory plant biodiversity for the discovery of proteasome modulators

2. Proposer

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4. Key words

(Max. 5 – at least 2)

Ecological service; Nature-aided drug discovery; natural compounds; proteasome; cancer.

5. Abstract

(Max. 1.500 characters with spaces)

Nature plays a relevant role in drug discovery arena, as testified by the high percentage of *nature-inspired drugs* approved by FDA over the past three decades. Starting from this evidence and with the final aims to valorize the flora of Pavia countryside and to find new biologically active compounds, herein we will focus our attention on wild or cultivated medicinal plants growing in our territory. It is an *underestimated ecological service* that represents a powerful source of active compounds and therefore it is an effective tool to promote the importance of biodiversity in our territory. Floristic information are already available thanks to collections made in 2016 by Ardenghi and Polani who catalogued all the taxa growing in Province of Pavia (*La flora della provincia di Pavia, Lombardia, Italia settentrionale*). This text will constitute the starting point of the proposed project, since it collects all the information essential for building the first electronic database of secondary metabolites produced by plants growing in our countryside. Once the database will be

ready, we will move towards the identification of new potential drugs. Basing on the experience of our multidisciplinary network, we will focus on compounds able to bind proteasome. Briefly, an *in silico* approach will be applied, a set of potential proteasome ligands selected, and then purchased or isolated from the proper vegetal matrices. Lastly, compounds will be biologically evaluated.