

FORM PER PROGETTI BANDO DOTTORATO

1. Project title

Evolutionary disentanglement of hybridization and introgression dynamics in *Hieracium* apomictic polyploid species complex

2. Proposer

Surname	Orsenigo
Name	Simone

3. Research Unit

Surname	Name	Institution
Cucinotta	Mara	University of Milan

4. Key words

(Max. 5 – at least 2)

Plant evolution, Hybridization, Systematics, Asteraceae, Apomixis

5. Abstract

(Max.1.500 characters with spaces)

Hieracium L. (Asteraceae) is an ideal model for studying reticulate evolution in plants due to the combined effects of processes such as hybridization, polyploidy, and apomixis. However, the extent of introgression in these highly hybridized groups of species remains poorly understood. This project focuses on the evolutionary dynamics and hybridization events between diploid *H. tomentosum* L. and *H. andryaloides* Vill. and polyploid, facultative apomictic species like *H. rionii* Grelli or *H. villosum* Jacq. collected in the same location, hypothesizing the formation of hybrid lineages currently ascribed to *H. pellitum* Fr., *H. erioleucum* Zahn, or *H. monregalense* Burnat & Grelli depending on morphology. By integrating genomic and plastome data, this study will reconstruct evolutionary relationships among the hybrid complex and assess the parental species contributions. Nuclear genome analyses will determine evolutionary, ancestral component proportions and historical gene flow, while plastid genome will add to the analysis information about introgression levels and hybridization directionality. The results will clarify the role of hybridization and polyploidy in the diversification of subgenus *Hieracium*, contributing to taxonomy and conservation of this neglected group. Moreover, this case study will serve to broaden the understanding of evolutionary processes in apomictic polyploid complexes, with relevance for future studies on speciation and adaptive evolution.