Report on the outcomes of a Short-Term Scientific Mission[[1]](#footnote-1)

Action number: CA18221

Grantee name: Sabina VLAD

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| **Details of the STSM**  Title: The effect of pesticides on the reproductive success of the lizards  Start and end date: 01/07/2023 to 15/07/2023 |
| **Description of the work carried out during the STSM**  Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section. |
| (max. 500 words)  The aim of the STSM was to assess the effect of the pesticides commonly used in the context of vineyard management in the Iberian Peninsula on squamates, using as model species Bocage's Wall Lizard (*Podarcis bocagei*). For this I investigated how the life history traits of this lizard species, with a focus on body size and reproductive success, are affected by the spraying with pesticides and how the effects described at individual level can be extrapolated to population-level.  During the STSM I have tried to contribute to improving the conditions in which the animals are kept. For avoiding losing the animals from the mesocosms, together with Dr. G. Simbula I have attached slippery PVC stripes on the superior edge of the mesocosms. I have constantly checked for the presence of openings in between the substrate and the walls of the mesocosms, and where they existed, I filled with polyurethane foam. I have ensured a suitable density and height of the vegetation so that the animals cannot use it for climbing outside. I provided the reconstruction and sanitation of a mesocosm in which an ant colony was present, to avoid a potential attack directed toward the eggs.  During my stay I have implemented hygiene rules to prevent the spread of potential pathogens that caused the mortality of a large number of lizards in late spring. Also, I contributed to collecting other lizards for replacing the dead or missing individuals from the mesocosms. All the new individuals were marked by toe clipping and I collected biological samples (toes and feces, in individual Eppendorf tubes).  I did daily check-up of the mesocosms conditions (i.e., watering system which ensures the optimal humidity, vegetation height, ant removal from the mesocosms for avoiding the establishment of other colonies). I fed the animals two times per week, distributing two crickets for each lizard. One time per week I used mashed bananas for offering alternative trophic resources by attracting insects inside the mesocosms.  Every two weeks I took out the lizards and weighed them in lab conditions, using a digital scale with four decimals. I have digitally scanned all the individuals for keeping track of the animals that are currently present in the mesocosms, extract the snout-vent-length without further disturbing the animals and quantify the scar number for the head and chest in males and inguinal in females.  I collected observations regarding clutches presence inside the mesocosms. I recorded the initial number of eggs and their evolution, i.e., survival or death.  I have applied the pesticide treatment according to the spraying schedule. I sprayed two thirds of the mesocosms with pesticides according to the treatments (i.e., copper sulphate and a combination of chemical pesticides), and one third, the control mesocosms, only with water. |
| **Description of the STSM main achievements and planned follow-up activities**  Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.  *(max. 500 words)*  Seven out of the 32 females laid eggs inside the mesocosms in June. Two of the clutches were found in control mesocosms, three in mesocosms sprayed with copper sulphate and two in mesocosms sprayed with a mixture of pesticides. The maximum number of eggs within a clutch was of five, and it was in a mesocosm with copper sulphate treatment. Two other clutches contained four eggs each, one being laid in a control mesocosm and another one in a mesocosm with mixt treatment. The rest of the clutches contained three eggs each. In only three mesocosms, two control and one with copper sulphate treatment, all the eggs survived.  In the mesocosm with the five eggs laid by the females, all eggs gradually died and then disappeared in few weeks, as a consequence of potential cannibalism.  There was a general increase in size among 54% of the monitored lizards, with a mean of 0.200g, but not influenced by the treatment applied in the mesocosm.  The way the mesocosms were designed offered proper shelter with favourable conditions to the lizards. The maximum temperatures recorded in the mesocosms were 33 Celsius degrees. Since bricks with holes and vegetation were provided in each mesocosms, lizards have places where they can thermoregulate and reduce the thermal stress efficiently. |

1. This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant. [↑](#footnote-ref-1)