

## NOTA BREU

***Torymus sinensis* Kamijo, 1982 (Hymenoptera, Torymidae) has arrived in Spain*****Torymus sinensis* Kamijo, 1982 (Hymenoptera, Torymidae) ha arribat a Espanya**

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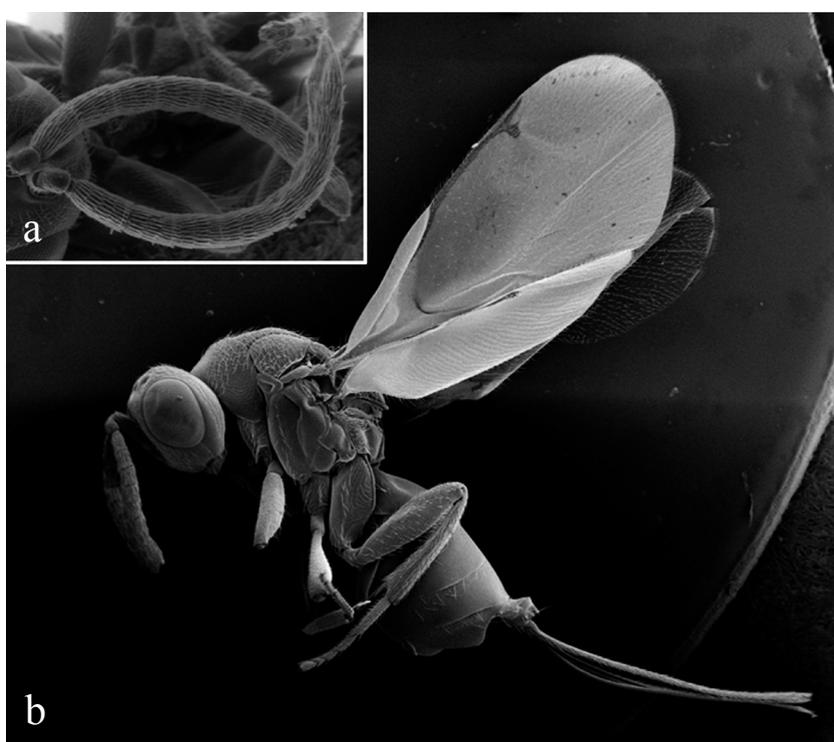


Figure 1. SEM pictures of *Torymus sinensis* collected in Catalonia: (a) male antenna, (b) female habitus.

*Dryocosmus kuriphilus* Yasumatsu, 1951 (Hym., Cynipidae), an Oriental pest in chestnut (*Castanea* spp), was detected for the first time in the Iberian Peninsula in 2012 (Pujade-Villar *et al.*, 2013). It was introduced accidentally in Europe, via Italy in 2002, according to (Brussino *et al.*, 2002).

*Torymus sinensis* Kamijo, 1982 (Fig. 1) is a parasitoid, native from China, and a specific species attacking *D. kuriphilus*. It has already been used in America and Oriental Palaearctic successfully. In Europe, the first releases of this species took place in Italy in 2005 (Quacchia *et al.*, 2008) which also served as a testing ground. Among the many studies conducted in Italy with *T. sinensis*, Matošević *et al.* (2015) mention that after 6-7 years parasitism, this parasitoid reduced the populations of *D. kuriphilus* to tolerable levels (infestation less than 30 %). Later, several years after releasing *T. sinensis* in Italy and probably pressured by tree economic losses, different co-

untries took this initiative as well: France from 2011-2013 (Borowiec *et al.*, 2014), Croatia and Hungary in 2014-2015 (Matošević *et al.*, 2015) and Slovenia in 2015 (Matošević *et al.*, 2015). Once released this species does not only occupy the area of liberation but spreads into others due to its great mobility. There have been some test-releases in Spain and Portugal as well (Paparella *et al.*, 2016). In the case of Spain, these tests were carried out in the South (Andalusia) and the Northwest (Galicia and Asturias) of the country, according to Gerardo Sánchez Peña (pers. com., Biocastanea-2017)..

*Torymus sinensis* has shown high dispersal ability, spreading over short distance by active flight and over long distance aided by wind, being able to cover more than 70 km in only a few days (Colombari & Battisti, 2015). In the northeast of the Iberian Peninsula, the locations where *T. sinensis* were collected emerging (in 2016) from *D. kuriphilus* galls

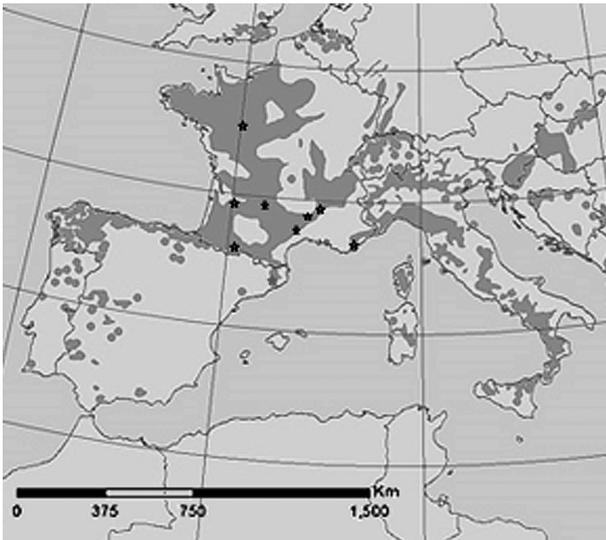


Figure 2. Distribution of *Castanea sativa* in Eastern Europe (obtained from [http://www.euforgen.org/fileadmin/templates/euforgen.org/upload/Documents/Maps/JPG/Castanea\\_sativa.jpg](http://www.euforgen.org/fileadmin/templates/euforgen.org/upload/Documents/Maps/JPG/Castanea_sativa.jpg)) including the points of *T. sinensis* release in France (obtained from <https://www6.inra.fr/cynips-chataignier/Principaux-resultats>) and the point where this parasitoid was collected in *Dryocosmus kuriphilus* Catalanian galls.

are: Olot (La Garrotxa, Girona): 12 ♀ 9 ♂; Celrà (El Gironès, Girona): 13 ♀ 5 ♂; and Montseny (La Selva, Girona): 5 ♀ 1 ♂. All these localities are around 300-400 km far from the closest *T. sinensis* releasing sites in France (Fig. 2). Considering the data mentioned above, they have had enough time to reach the Catalan territory (4-7 years), so we have no doubt that this has been the most possible way for *T. sinensis* to reach Catalonia. We must also keep in mind that the border between Spain and France is a windy place where the heights of the mountains (via Girona near the sea) are by no means in any case a geographical barrier, while winds are strong and abundant in this mentioned area. We must also mention that cinipids (and by extension Chalcidoidea) can travel long distances thanks to air currents; Ros-Farré & Pujade-Villar (1988) showed that *Plagiotrochus amenti* Kieffer, 1901 (Hym.: Cynipidae) was displaced off in an annuity about 200 km. On the other hand, a nearly continuous distribution of *C. sativa* with presence of *D. kuriphilus* favours the implantation of *T. sinensis* in areas far from the liberation site (Fig. 2). In fact, the present populations of *T. sinensis* in Hungary are due not only because of the releasing but also by the natural migrating of specimens from Italy (Matošević *et al.*, 2017a). Records of *T. sinensis* in countries where no release has yet been made have already been mentioned in Switzerland in 2013, in England in 2015 (Bartlett, 2016), in Bosnia and Herzegovina in 2016 (Matošević *et al.*, 2017b) and now (since 2016) in Catalonia (Girona province).

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