

Contract No: **YP3TA-0559411-CircLandfil**

Title: **Development of sustainable process for the production of biodegradable mulch films and bioadhesives for wood panel applications from the organic fraction of municipal solid waste**

Duration: **15/04/2025-31/05/2026**

**Abstract:**

CircLandfil focuses on the utilization of the organic fraction of municipal solid waste (OFMSW) to produce bio-based and biodegradable mulch films, bio-based adhesives and organic fertilizer (compost). An innovative biorefinery will be developed through refining processes of OFMSW to produce valuable fractions and platform chemicals, specifically, succinic acid and 1,4-butanediol as well as the separation of a proteins fraction. Succinic acid and 1,4-butanediol will be polymerized to produce poly(butylene succinate) (PBS), which will then be employed in the development of PBS-based mulching films. The proteins will be applied in the production of bio-based adhesives suitable for the manufacture of composite wood panels. Fertiliser will be produced from the remaining streams, organic waste fractions and pruning. Sustainability assessment will be employed for the evaluation of the techno-economic and environmental impact of the processes.

CHIMAR's main role in this project is to develop bio-based adhesives by valorizing the proteins derived from the OFMSW, aiming to replace part of the fossil-based feedstocks used in conventional adhesives. The developed bio-based adhesives will be tested and validated through their application in composite wood panels (plywood).

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