

conventional panel in the impact categories of climate change and marine eutrophication, by 34% and 30%, respectively. Yet climate change gains are fictitious if the lifespan of the panel is short, as the stored carbon will be released into the atmosphere at the end of the panel's life. The processes identified as responsible for the overall environmental impacts of the panels are essentially linked to the procurement of raw materials. Agricultural activities (such as zinc amendments to soil treatment and fertilizer production) are the main processes responsible for the higher environmental impact of the biocomposite panel when compared to the conventional one. The valorisation of co-products, on the other hand, affects both positively and negatively the environmental performance of the bio-based panels and must not be neglected from the system boundary.

Given that materials in the aviation sector have a lifespan of 30 years and over, a biocomposite panel represents a relevant option when it comes to climate change mitigation. It was calculated that through the use of bio-based panels as elements in interior fittings in airplanes for the next 20 years, the emission of over 75 megatons of CO<sub>2</sub> could be delayed. However, production processes and regulations are yet to be optimized and adjusted for biocomposite materials to have a place in the aviation sector.

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## CRedit authorship contribution statement

**Alejandra Gomez-Campos:** Methodology, Investigation, Writing - original draft, Visualization. **Claire Vialle:** Validation, Writing - review & editing. **Antoine Rouilly:** Writing - review & editing. **Lorie Hamelin:** Validation, Writing - review & editing. **A-line Rogeon:** Project administration. **David Hardy:** Project administration. **Caroline Sablayrolles:** Validation, Writing - review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jclepro.2020.124986>.

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