Sustainability, health, and renewable materials - Trends in scientific publications

Nežka Sajinčič1\*, Eftim Zdravevski2, Anna Sandak1,3, Andreja Istenič Starčič4,5

1 InnoRenew CoE, Livade 6, 6310 Izola, Slovenia, [nezka.sajincic@innorenew.eu](mailto:nezka.sajincic@innorenew.eu), anna.sandak@innorenew.eu

2 Faculty of Computer Science and Engineering, Saints Cyril and Methodius University, ul. Ruger Boskovik 16, 1000 Skopje, North Macedonia, [eftim.zdravevski@finki.ukim.mk](mailto:eftim.zdravevski@finki.ukim.mk)

3 Faculty of Mathematics, Natural Sciences and Information Technologies, University of Primorska, Glagoljaška 8, 6000 Koper, Slovenia, anna.sandak@famnit.upr.si

4 Faculty of Education, University of Primorska, Cankarjeva 5, 6000 Koper, Slovenia

5 Faculty of Civil and Geodetic Engineering, University of Ljubljana, Jamova 2, 1000 Ljubljana, Slovenia, andreja.starcic@gmail.com

Building practices can have a large impact on human health and the environment, so it is crucial to strive towards sustainability and use of renewable materials in all stages of the construction process. As academic research accumulates, detecting trends can illuminate current developments in both research and practice.

Our aim was to explore recent trends in scientific publications in five topics: “digital solutions in renewable materials”, “enhancing renewable materials with modification”, “developments in renewable material composites”, “advancing human health in the built environment”, and “design and engineering solutions for sustainable buildings”. We used a Natural Language Processing based toolkit (Zdravevski et al., 2019) to perform an automatic quantitative analysis of scientific articles’ titles and abstracts published in English. The search was performed in October 2019 and it included three databases (i.e., PubMed, IEEE Xplore, and Springer). In total, 2036 publications were identified and analysed based on the inclusion of specific keywords (e.g., “biophilic design”, “timber”, “circular economy”) from three areas: health, renewable materials, and sustainability.

The largest number of articles was found in the topic “digital solutions in renewable materials”, followed by “enhancing renewable materials with modification” and “design and engineering solutions for sustainable buildings”. The number of publications peaked in 2015 and 2016, but after a slight decrease in popularity in 2017, the topic has again started to gain interest. The most common keywords in the included articles were related to the topic of sustainability, ahead of keywords related to the topics of health and renewable materials. The most frequently mentioned specific keywords were “human well-being”, “sustainable architecture and design”, and “human health”.

**Keywords:** sustainability, health, renewable materials, buildings

**Acknowledgements:** The authors gratefully acknowledge the European Commission for funding the InnoRenew CoE project (Grant Agreement #739574) under the H2020 Widespread-Teaming programme and the Republic of Slovenia for funds from the European Regional Development Fund. We also acknowledge support from the SHELD-ON COST Action CA16226.

REFERENCES

Zdravevski, E., Lameski, P., Trajkovik, V., Chorbev, I., Goleva, R., Pombo, N., & Garcia, N. M. 2019. Automation in systematic, scoping and rapid reviews by an NLP toolkit: A case study in enhanced living environments. In: Ganchev I., Garcia N., Dobre C., Mavro-moustakis C., Goleva R. (eds.) Enhanced Living Environments. Lecture Notes in Computer Science, vol 11369. Springer, Cham.