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| **Published Researches****الأبحاث المنشورة** |
| Title**عنوان البحث** | [Polypropylene/lignin blend monoliths used as sorbent in oil spill cleanup](https://www.sciencedirect.com/science/article/pii/S2405844020314353) |
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| Source Title**اسم المجلة** | Heliyon |
| ISSN |  |
| Q | Q1 |
| Link**رابط البحث من موقع المجلة** | <https://doi.org/10.1016/j.heliyon.2020.e04591> |
| Abstract**خلاصة** | With increasing industrial development, frequent oil [spillages](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/spillage) in water; therefore, it is [imperative](https://www.sciencedirect.com/topics/social-sciences/imperatives) and challenging to develop [absorbents materials](https://www.sciencedirect.com/topics/engineering/absorbent-material) that are eco-efficiency, cost-effective, and [pollution prevention](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/pollution-prevention). In this study, [sorbents](https://www.sciencedirect.com/topics/materials-science/sorbent) obtained from Lignin incorporated with [Polypropylene](https://www.sciencedirect.com/topics/materials-science/polypropylene) in different levels loading 0, 10, 20 % wt using thermally induced phase separation Technique (TIPS). The Polypropylene/Lignin blend [monoliths](https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/monolith) were fabricated and compared in terms of morphological, thermal, and wetting characterizations. The successfully [blending](https://www.sciencedirect.com/topics/chemical-engineering/blending) of different lignin concentrations with preserved the [chemical structure](https://www.sciencedirect.com/topics/materials-science/structure-composition) of the polymer was confirmed by [FTIR](https://www.sciencedirect.com/topics/materials-science/fourier-transform-infrared-spectroscopy) analysis. Thermogravimetric tests displayed that the existence of Lignin has changed the [onset temperature](https://www.sciencedirect.com/topics/engineering/onset-temperature) (Tonset) of the blending sorbents, decreasing as the loading of Lignin is increased. The [contact angle measurement](https://www.sciencedirect.com/topics/engineering/contact-angle-measurement) showed a decrease in the [hydrophobicity](https://www.sciencedirect.com/topics/materials-science/hydrophobicity) of sorbents with increasing lignin loading, Polypropylene/Lignin blend monoliths showed better absorption toward oils (soybean – engine) as compared to Polypropylene itself. PP10L showed an improvement in the oil [sorption](https://www.sciencedirect.com/topics/chemistry/sorption) capacity around 2 times compared to the Polypropylene. These excellent features make Polypropylene/Lignin blend monoliths more competitive promising candidates than commercial absorbent. |