Revitalizing lignin

Propositions

1. ‘Lignin is like a black hole - very, very undefined and very, very black’ - dr Ola Wroblewska, former colleague. I think that lignin is actually not very, very undefined – its chemical structure is hard to define.
2. Furthermore, lignin can also be light colored, for instance when its hydroxyl groups are modified with acetals. (Bloom Biorenewables: Shuai et al., Science, 2016, 354, 6310, 329-333)
3. Lignin has so much more to offer than just being burned for energy. It can be, converted into chemicals and materials among many others.
4. One designing biobased materials using lignin as a feedstock should bear in mind its batch-to-batch structural inhomogeneities. Therefore, lignin depolymerization techniques, resulting in products with a more homogenous structure and more defined properties, are very promising to ensure constant quality of the final product.
5. Usually, if your reaction turns black, it means that it ‘failed’ due to the occurrence of degradation and/or side reactions. When you work with lignin you will never know until you analyze the product.
6. However, there are no failed experiments - we always learn something about the subject, even if the results are not as we expected them to be.
7. Only because the material is biobased, does not mean that it is sustainable and environmentally friendly.
8. When designing an experiment, one should carefully consider how to analyze its outcome, whether all required analytical techniques are reliable and (readily) available.
9. Intellectual property rights protection is a key in transforming academic research results into their commercialization and marketable solutions. (https://www.the-guild.eu/blog/connecting-the-dots-iprs-knowledge-transfer-innova.html)