



Western

Institute for Chemicals and Fuels
from Alternative Resources (ICFAR)

April 28, 2022

Attention: Jodi Formosi, Bella Biochar Corporation

Dear Jodi,

Subject: Scientific differentiation of Bella Biochar's characteristics compared to pyrolysis biochars

My team and I have conducted a significant amount of research on Bella Biochar since the corporation became an NSERC Collaborative Industry Partner with the University of Western Ontario in 2019.

Taking into consideration all of my years of international experience and expertise in studying, classifying and producing biochar from various feedstocks and processes, I can confidently report the following findings to support the fact that Bella Biochar is superior to pyrolysis biochar:

1. Bella Biochar has a much more stable carbon content resulting from the high processing temperatures (in excess of 1,200 °C), compared to the typical pyrolysis processing temperatures of 450 to 600 °C. The resulting carbon structure is more graphitic and it is not bioavailable to microorganisms. A typical indication of stability is the very low hydrogen to carbon ratio and oxygen to carbon ratio, both of which are significantly lower in Bella Biochar than any other pyrolysis biochar. This means that Bella has the advantage of having a consistently high carbon content (between 80-90%) and that it excels at sequestering carbon when introduced in soil, therefore representing the most efficient carbon dioxide sequestration method (of the order of 3 metric tonnes of CO₂ equivalent, for every 1 metric tonne of biochar buried in the soil). Furthermore, because of its stability and lack of bioavailability, Bella can maintain the captured carbon in the soil for hundreds or even thousands of years. For this reason, the most globally respected Carbon Crediting body, PURO.Earth, has signed a Carbon Capture Agreement with Bella Biochar.
2. Because of the high production temperature, Bella Biochar has a much greater porosity level than pyrolytic biochars. Consequently, it offers superior adsorption properties and our tests have demonstrated that, very often, the adsorption properties of Bella Biochar are superior to



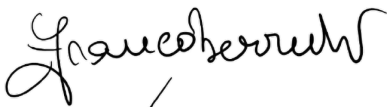
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those of conventional activated carbons when adsorbing model molecules of dyes and pharmaceuticals that are typically difficult to remove from wastewaters. This opens up new opportunities for utilization of this material for air and water remediation, aligning with the UN Sustainable Development Goals # 2,3,6,9,12,13,14,15.

3. Bella Biochar is Certified Organic because it is produced from controlled clean woody feedstocks and, again due to the high production temperatures, it is free of harmful tars.
4. Bella Biochar is only produced from landfill diverted clean biomass, which, if left unprocessed and allowed to naturally decompose, would generate carbon dioxide and methane. Therefore, Bella is demonstrating to be an exemplary corporation for Environmental and Social Governance.

Please let me know if you require any further information.

Best regards,



Franco Berruti, PhD, P.Eng. FCAE

Professor of Chemical and Biochemical Engineering

Director of ICFAR