

## **WORKSHOP**

### ***Maghreb agriculture challenged by water shortage and reduced soil fertility: Biochar, a sustainable solution from bio-economy? (Module I)***

*24 March 2021, 10:00 – 18:00 (CET), online via Zoom*

Worldwide there is a growing interest in application of biochar in agriculture. Biochar immobilizes carbon and methane, thereby reducing their impact on climate change. Furthermore, biochar can contribute to targeted soil improvement, due to its positive effects on water balance, ion adsorption, soil structure and soil porosity.

The aim of this workshop is to launch a scientific network being keen to develop solutions for urgent agricultural and environmental problems in arid and semi-arid areas, with the focus on application of biochar and improvement of agricultural soils. The activities of women scientists, especially in Maghreb states, should thereby be deliberately promoted and supported.

Invited researchers from Germany and Maghreb states (Tunisia, Morocco) are not only experts in the relevant research fields, but are also familiar with the challenges of implementation practices and are aware of regional bioeconomy potentials.

#### **THE OBJECTIVES AND EXPECTED OUTCOMES:**

In a series of online and (hopefully also) face-to-face activities over the period of six months we intend to set a base for a solid research network with the potential to develop an interdisciplinary collaboration project.

This first initiation workshop will particularly focus on:

#### **(1) Delivering specific insight into research challenges and potentials**

- evaluating and comparing current research and implementation strategies for biochar production and application in the countries involved (BW, Tunisia & Morocco)
- identifying and discussing the most relevant (and critical) research challenges

#### **(2) Identification of additional bioeconomy-related research areas suitable for collaboration**

- by examining the innovative technologies such as development of prototypes for carbon fuel cells

#### **(3) Formation of a solid basis for planning research collaborations**

- by expanding the researcher's professional network and initiating the exchange of ideas

#### **(4) Enlarging the student's expertise**

- broadening the student's knowledge in bioeconomy

- fostering the student experience in interdisciplinary exchange
- expanding the student network

### **WORKSHOP FORMAT**

The workshop will be conducted as a series of short lectures, followed by the discussions involving all participants and being facilitated by the organisers. During the lunch break the participants will have an opportunity to exchange with their peers.

The wrap up will start with 4 parallel 30-minutes-break-out-sessions being thematically dedicated to the (I) production of biochars/hydrochars, (II) application in agriculture, (III) innovation technologies and (IV) follow-up network activities, each section being governed by the specialist in the field or organisers. Participants will be able to freely choose the session they want to join and will have an opportunity to summarize the workshop outcome by asking questions or giving comments. Each group will be connected to the external miro-board to pin the ideas and comments.

The workshop will end in a main room with short reports from each session and by outlining the follow-up workshop planned for June 2021.

### **PRELIMINARY PROGRAM:**

**10:00 Welcome address** (TP & TR)

*Part I: Setting the scene*

**10:15 The MaghroChar project – content and goals for Phase I and Phase II** (TP & TR)

10:45 Discussion

**11:00 Biochars: Pyrochars and hydrochars, their generation and functional characterization**  
(*Andrea Kruse, University of Hohenheim, Germany*)

11:30 Discussion & Coffee break

**11:45 Carbon-negative circular economy - sustainable solutions with biochar** (*Venna von Lepel, NovoCarbo GmbH, Germany*)

12:15 Discussion

**12:30 – 14:30 Lunch break & networking**

*Part II: Application in agriculture*

**14:30 Application of biochar in agriculture** (*t.b.a.*)

14:50 Discussion

**15:00 Biochar applications in arid regions** (*Achouak Arfaoui, University of Jendouba, Tunisia*)

15:20 Discussion & Coffee break

*Part III: Perspectives for carbon materials*

**15:40 Application of hydrochars as functional carbon materials in carbon fuel cells – Research perspectives in Maghreb states** (*Amal Elleuch, University of Sfax, Tunisia*)

16:00 Discussion

**16:10 Biochar production from agricultural by-products in Morocco** (*invited: Tarik Chafik, University Abdelmalek Essaadi, Morocco*)

16:30 Discussion

**16:40 – 18:00 Wrap up and outlook**