

Anaerobic Fermentation Workshop

Event Summary

Joint EBNet / BBNNet workshop on the Role of Anaerobic Fermentation in the Circular Bio-economy

Hosted by the Environmental Biotechnology Network and the Biomass Biorefinery Network

Birmingham 23-24 January 2025

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Joint EBNet / BBNet workshop on the Role of Anaerobic Fermentation in the Circular Bio-economy

Summary of event

With administrative and financial support from the Biomass Biorefinery Network (BBNet) and Environmental Biotechnology Network (EBNet), EBNet's [Anaerobic Fermentation Working Group](#) (WG) hosted a workshop in January 2025. The workshop aimed at bringing together key individuals in anaerobic fermentation (AF) and related areas, from both academia and industry, to address research and development gaps and needs for this industrial biotechnology route. The workshop was oriented to produce a final document highlighting the potential for AF to contribute to a low carbon society and possible ways to make this biotechnological route a reality. The event took place over two days (see Appendix 1 of main report: AF Workshop Agenda) and was attended by 23 individuals with a range of backgrounds and expertise.

The workshop opened with introductions from the co-Leads of the AF WG and Network Managers of both BBNet and EBNet, and slides prepared by BBSRC were also presented by the BBNet manager (see Appendix 2 of main report: AF Workshop introduction and activities). The participants were invited to give short presentations covering two points: 1. the areas you work on, your experience in the field of Anaerobic Fermentation and your view of the potential for Anaerobic Fermentation in the context of a circular bio-economy; and 2. from your viewpoint, what are some key questions, knowledge gaps and issues in this area? All slides were made available to all participants after the presentation sessions to support the group activity on the following day, and to form the basis for compiling a final document as one of the outcomes of the workshop (see Appendix 3 of main report: Participant presentation slides). The Mentimeter voting app was also used to capture the participants' opinions on this industrial biotechnology (see Appendix 4 of main report: Mentimeter results and open floor discussion notes).

The second day was dedicated to group activities aimed at defining possibilities to advance the knowledge on anaerobic fermentation focusing on real case studies and establishing actions to move the field towards wider implementation. Three key application areas of AF were discussed based on the sources of organic residues and wastes, including biosolids produced from wastewater treatment works, organic fraction of municipal solid wastes (OFMSW), and agro-industrial wastes and residues. Participants were organised into three groups, A (including subgroups a1 & a2) for biosolids, B (b1&b2) for OFMSW and C (c1&c2) for agro-industrial wastes, with three pairs of facilitators. The subgroups moved between tables (with post-it notes & dot stickers) for different sessions, but the facilitators stayed with a specific topic area for the day (Jaime Massanet-Nicolau & Louise Byfield on biosolids; Raffaella Villa & Luca Alibardi on OFMSW; and Özge Eyce-Broadbent & Lucy Booth on agro-industrial materials).

Session 1 covered all aspects of AF systems, from defining the potential, opportunity and application to proposing a way forward (see Appendix 2 of main report). Facilitators made sure key points were noted on large flipchart sheet using post-it notes. Subgroups swapped for session 2, i.e. biosolids (b1, c1), OFMSW (a1, c2) and agro-industrial wastes (a2, b2). The facilitators explained at the start of the session about what had been achieved by the previous group, and the newcomers voted for what they think the most important aspects and added more aspects as necessary. Session 3 took place with participants swapped again, i.e. biosolids (b2, c2), OFMSW (a2, c1) and agro-industrial wastes (a1, b1). This arrangement was made to maximise the opportunities for participants to talk to each other and to express their opinions. The final 30 minutes of the morning sessions were used for the facilitators to summarise the discussions carried out on each waste and residue streams, and opportunities for participants to add additional comments. The summary for AF of each waste stream can be found in Appendix 5 of the main report.

The workshop closed with a general discussion from participants of the proposals and next steps of AF technologies and assessment of the effectiveness of the workshop.