



“Gheorghe Asachi” Technical University of Iasi, Romania



AQUEOUS EXTRACTS AND RESIDUAL BIOMASS USE IN SUSTAINABLE AGRICULTURE: A CIRCULAR ECONOMY MODEL

**Claudio Beni^{1*}, Simona Rinaldi², Eva Masciarelli³, Marco Di Luigi⁴,
Laura Casorri³, Ulderico Neri⁵**

¹Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria - Centro di ricerca Ingegneria e Trasformazioni
Agroalimentari – CREA-IT - Via della Pascolare, 16 - 00016 Monterotondo (RM) Italy

²Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria - Centro di ricerca Zootecnia e Acquacoltura – CREA-
ZA - Via Salaria, 31 - 00016 Monterotondo (RM) Italy

³Department of Technological Innovations and safety of plants, products and anthropic settlements (DIT)- Via R. Ferruzzi, 38/40
- 00143 Rome, Italy

⁴Department of Occupational and Environmental Medicine, Epidemiology and Hygiene DiMEILA- Via di Fontana Candida 1 -
00078 Monte Porzio Catone - Rome, Italy

⁵Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria - Centro di ricerca Agricoltura e Ambiente,
CREA-AA - Via della Navicella 2 - 00184 Rome, Italy

Abstract

The circular economy is based on sustainable production and consumption. In terms of circular economy, sustainable agriculture is achieved through the effective use of internal resources to self-produce and use, without waste production, green preparations for the fertilization and protection of crops. In this context, the project of a certified organic farm aims to cultivate medicinal plants to self-produce aqueous extracts of thyme and tansy, for use in crop protection, and reuse residues for composting and mulching. Regarding the environmental and economic impact, a virtuous process of cultivation and defense of agricultural crops was carried out (three-year rotation of zucchini-cabbage-chicory), to respond to market demand and to implement safety and health protection policies for farm workers and consumers. In a preliminary germination test, a stimulating effect was observed on *Vicia faba* seeds treated with thyme extract in which the greater elongation of the primary roots, relative to the control, was statistically significant. The effects of the extracts on the crops (weight and chlorophyll content) have always been significant. In particular, the chlorophyll content of chicory is highly significant for the remaining parameters measured for all horticultural crops in the field trial.

Key words: aqueous extracts, circular economy, composting, mulching, natural farming

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