

4th European GREEN Conference

GREEN 2026

26 — 29 MAY

VODICE, CROATIA

HOTEL OLYMPIA SKY

BOOK OF ABSTRACTS

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4. Europska GREEN konferencija

GREEN 2026

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KNJIGA SAŽETAKA **4. Europska GREEN konferencija**

Published by International Association of Environmental Scientists
Izdavač and Professionals (IAESP), Osijek, Croatia
*Međunarodno udruženje znanstvenika i stručnjaka
za zaštitu okoliša (MZSZO), Osijek, Hrvatska*

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Graphical layout and logo Lara STANIĆ
Grafičko oblikovanje i logotip

Osijek, 2026.

ISSN: 2991-5171

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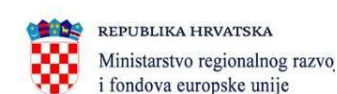
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3D-Printed Functional Foods from Cornelian Cherry: Impact of Cultivars and Hydrocolloids on Bioactive Properties

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Abstract

Cornelian cherry (*Cornus mas* L.) is a traditional fruit species that remains insufficiently explored despite its strong bioactive potential. Interest in the development of new functional foods from cornelian cherry cannot overlook 3D printing (3DP) as a sustainable technology, as it enables innovative formulation, and the creation of customized products with enhanced nutritional value and reduced environmental impact. This study investigates the potential of cornelian cherry as a raw material for the development of functional foods using 3DP. Three cultivars (Schönbrunner Gourmet Dirndl, Kasenlaker, and Panchevar) were combined with different hydrocolloids (wheat starch, guar gum and gum arabic) to produce 3D-printed snacks. The samples were evaluated for the content of bioactive compounds and antioxidant capacity. The results indicated that cultivars richer in bioactive compounds exhibited higher antioxidant activity. Hydrocolloids significantly influenced the stability of bioactive compounds, with gum arabic showing a slightly more favorable effect in preserving certain compounds. Although some reduction in anthocyanin stability was observed during 3DP, cornelian cherry demonstrated strong potential for the development of innovative functional products. In conclusion, cornelian cherry has strong potential for the development of functional products via 3DP due to its high content of bioactive compounds and antioxidant capacity.

Keywords: Cornelian cherry, 3D food printing, functional foods, bioactive compounds, antioxidant activity