
A REVIEW STUDY ON 3D CUSTOM PRINTING OF FOODSTUFFS

Dr. Priyank Singhal*

*Teerthanker Mahaveer University,

Moradabad, Uttar Pradesh, INDIA

Email id: priyanksinghal1@gmail.com

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ABSTRACT

For single and multi-material applications, a comprehensive review of various 3DP technologies and their associated dispensing/printing method for 3D personalized food manufacturing is presented. Food printing's effects on customized nutrition, on-demand food manufacturing, food processing technology, and process design are eventually discussed. Their use in home cooking and catering may offer not only an engineering solution for personalized meal design and nutrition management, but also a potential machine to reconfigure a customized food supply chain. The first generation food printer concept designs and working prototypes are presented in this research, with the goal of revolutionizing personalized food production via 3D printing (3DP). Unlike robotics-based food manufacturing technologies that aim to automate manual procedures for mass production, 3D food printing combines 3D printing with digital gastronomy to create food items that can be customized in form, color, taste, texture, and even nutrition. On the basis of fabrication platforms and printing materials, the chosen prototypes are evaluated. This expands customization possibilities to the industrial cooking industry while also introducing creative skills to fine dining.

KEYWORDS: Customized, Food Fabrication, 3d Food Printing, Platform Design, Multi-Material.

REFERENCES:

1. Gopinathan J, Noh I. Recent trends in bioinks for 3D printing. *Biomaterials Research*. 2018.
2. Gul JZ, Sajid M, Rehman MM, Siddiqui GU, Shah I, Kim KH, et al. 3D printing for soft robotics—a review. *Science and Technology of Advanced Materials*. 2018.
3. Wang X, Jiang M, Zhou Z, Gou J, Hui D. 3D printing of polymer matrix composites: A review and prospective. *Composites Part B: Engineering*. 2017.
4. Sharma TK, Prakash D. Air pollution emissions control using shuffled frog leaping algorithm. *Int J Syst Assur Eng Manag*. 2020;
5. Kala N, Gaurav A, Gautam V. Syntheses, characterization, and evaluation of novel non-carboxylic analogues of Gemfibrozil: A bioisosteric approach. *J Chinese Pharm Sci*. 2017;
6. Liu Z, Zhang M, Bhandari B, Wang Y. 3D printing: Printing precision and application in food sector. *Trends in Food Science and Technology*. 2017.
7. Sun J, Zhou W, Huang D, Fuh JYH, Hong GS. An Overview of 3D Printing Technologies for Food Fabrication. *Food Bioprocess Technol*. 2015;
8. Sun J, Peng Z, Zhou W, Fuh JYH, Hong GS, Chiu A. A Review on 3D Printing for Customized Food Fabrication. In: *Procedia Manufacturing*. 2015.
9. Bilal M, Singh N, Rasool T. A model supported biomedical waste for the enhancement of

- mechanical properties of concrete. *Model Earth Syst Environ.* 2021;
10. Sharma S, Bajaj H, Bhardwaj P, Sharma AD, Singh R. Development and characterization of self emulsifying drug delivery system of a poorly water soluble drug using natural oil. *Acta Pol Pharm - Drug Res.* 2012;
 11. Charlebois S, Juhasz M. Food futures and 3D printing: Strategic market foresight and the case of structur3D. *Int J Food Syst Dyn.* 2018;
 12. Iyer M, Tiwari S, Renu K, Pasha MY, Pandit S, Singh B, et al. Environmental survival of SARS-CoV-2 – A solid waste perspective. *Environ Res.* 2021;
 13. Lata S, Mittal SK. Identification of flavonoid glycosides of methanol extract from cucumis dipsaceus ehrenb. (fruit) by using HPLC-UV-ESI-MS methods. *Int J Pharm Qual Assur.* 2017;
 14. Goyal MK, Rai D V., Manjhi J, Barker JL, Heintz BH, Shide KL, et al. Study of dosimetric and spatial variations due to applicator positioning during inter-fraction high-dose rate brachytherapy in the treatment of carcinoma of the cervix: A three dimensional dosimetric analysis. *Int J Radiat Res.* 2017;
 15. Jain RK, Kumar S, Kumar A, Kumar A, Singh MK, Singh V. Effects of UV irradiation on Fission-fragment track parameters in Makrofol-E detector. *Int J Mod Phys E.* 2019;
 16. Anderson J, Wealleans J, Ray J. Endodontic applications of 3D printing. *International Endodontic Journal.* 2018.
 17. Vijayavenkataraman S, Fuh JYH, Lu WF. 3D printing and 3D bioprinting in pediatrics. *Bioengineering.* 2017.
 18. Oberoi G, Nitsch S, Edelmayer M, Janjic K, Müller AS, Agis H. 3D printing-Encompassing the facets of dentistry. *Frontiers in Bioengineering and Biotechnology.* 2018.
 19. Khatri M, Kumar A. Stability Inspection of Isolated Hydro Power Plant with Cuttlefish Algorithm. In: 2020 International Conference on Decision Aid Sciences and Application, DASA 2020. 2020.
 20. Talwar R, Chatterjee AK. Estimation of power dissipation of a 4H-SiC schottky barrier diode with a linearly graded doping profile in the drift region. *Maejo Int J Sci Technol.* 2009;
 21. Tripathi L, Kumar P, Singh R. A Review on Extraction, Synthesis and Anticancer Activity of Betulinic Acid. *Curr Bioact Compd.* 2009;
 22. Gaurav A, Gautam V. Identifying the Structural Features of Pyrazolo[4,3-c]Quinoline-3-ones as Inhibitors of Phosphodiesterase 4: An Exploratory CoMFA and CoMSIA Study. *Curr Enzym Inhib.* 2013;