Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD)
Re-accredited with 'A++' Grade by NAAC.CGPA 3.65/4, Category I by UGC
Coimbatore – 641 043, Tamil Nadu, India

PLAGIARISM CHECK REPORT (THESIS)

1.	Name of the Research Scholar	S.M. Devatha
2.	Roll No. and Year of Registration	20PHFNF003, 2021
3.	Department	Food Science and Nutrition
4.	Name of the Research Guide	Dr. Pa. Raajeswari
5.	Title of the Thesis / Dissertation	Sustainable Solutions: Edible Millet Tableware as a Substitute for Single-Use Cutleries in the Food Service Sector
6.	Similarity Content (%) Identified	**7%**
7.	Software Used	Turnitin
8.	Date of Verification	19-06-2025

Note : The report is excluding 14 Consecutive words, Review of Literature and Quoted Materials.

Checked by :

19/6/25
Information Scientist

SMDevatha
Research Scholar

19.06.25
Assistant Librarian

20/6/25
Research Guide

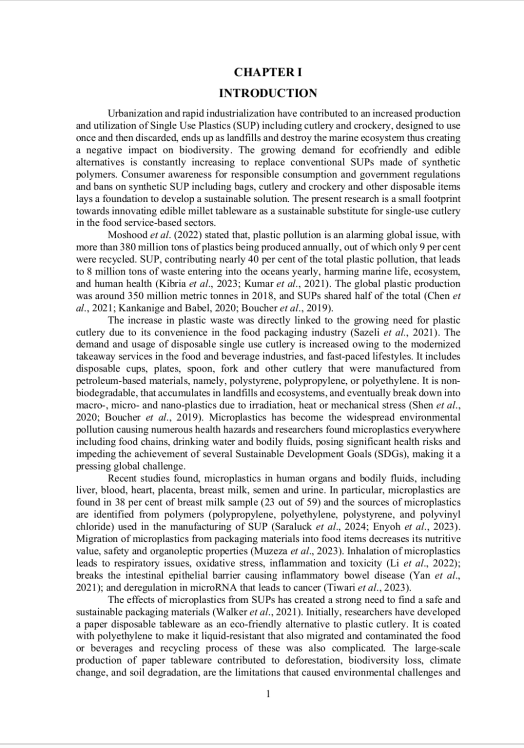
Date: 19-06-2025

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author:	Central Library Avinashilingam
Assignment title:	Paper 2024
Submission title:	Sustainable Solutions: Edible Millet Tableware as a Substitute f...
File name:	Millet_Tableware.docx
File size:	2.47M
Page count:	126
Word count:	55,696
Character count:	294,772
Submission date:	19-Jun-2025 03:21PM (UTC+0530)
Submission ID:	2338763921



CHAPTER I

INTRODUCTION

Urbanization and rapid industrialization have contributed to an increased production and utilization of Single Use Plastics (SUP) including cutlery and crockery, designed to use once and then discarded, ends up as landfills and destroy the marine ecosystem thus creating a negative impact on biodiversity. The growing demand for ecofriendly and edible alternatives is constantly increasing to replace conventional SUPs made of synthetic polymers. Consumer awareness for responsible consumption and government regulations and bans on synthetic SUP including bags, cutlery and crockery and other disposable items lays a foundation to develop a sustainable solution. The present research is a small footprint towards innovating edible millet tableware as a sustainable substitute for single-use cutlery in the food service-based sectors.

Moshood *et al*. (2022) stated that, plastic pollution is an alarming global issue, with more than 380 million tons of plastics being produced annually, out of which only 9 per cent were recycled. SUP, contributing nearly 40 per cent of the total plastic pollution, that leads to 8 million tons of waste entering into the oceans yearly, harming marine life, ecosystem, and human health (Kibria *et al*., 2023; Kumar *et al*., 2021). The global plastic production was around 350 million metric tonnes in 2018, and SUPs shared half of the total (Chen *et al*., 2021; Kankanige and Babel, 2020; Boucher *et al*., 2019).

The increase in plastic waste was directly linked to the growing need for plastic cutlery due to its convenience in the food packaging industry (Sazeli *et al*., 2021). The demand and usage of disposable single use cutlery is increased owing to the modernized takeaway services in the food and beverage industries, and fast-paced lifestyles. It includes disposable cups, plates, spoon, fork and other cutlery that were manufactured from petroleum-based materials, namely, polystyrene, polypropylene, or polyethylene. It is non-biodegradable, that accumulates in landfills and ecosystems, and eventually break down into macro-, micro- and nano-plastics due to irradiation, heat or mechanical stress (Shen *et al*., 2020; Boucher *et al*., 2019). Microplastics has become the widespread environmental pollution causing numerous health hazards and researchers found microplastics everywhere including food chains, drinking water and bodily fluids, posing significant health risks and impeding the achievement of several Sustainable Development Goals (SDGs), making it a pressing global challenge.

Recent studies found, microplastics in human organs and bodily fluids, including liver, blood, heart, placenta, breast milk, semen and urine. In particular, microplastics are found in 38 per cent of breast milk sample (23 out of 59) and the sources of microplastics are identified from polymers (polypropylene, polyethylene, polystyrene, and polyvinyl chloride) used in the manufacturing of SUP (Saraluck *et al*., 2024; Enyoh *et al*., 2023). Migration of microplastics from packaging materials into food items decreases its nutritive value, safety and organoleptic properties (Muzeza *et al*., 2023). Inhalation of microplastics leads to respiratory issues, oxidative stress, inflammation and toxicity (Li *et al*., 2022); breaks the intestinal epithelial barrier causing inflammatory bowel disease (Yan *et al*., 2021); and deregulation in microRNA that leads to cancer (Tiwari *et al*., 2023).

The effects of microplastics from SUPs has created a strong need to find a safe and sustainable packaging materials (Walker *et al*., 2021). Initially, researchers have developed a paper disposable tableware as an eco-friendly alternative to plastic cutlery. It is coated with polyethylene to make it liquid-resistant that also migrated and contaminated the food or beverages and recycling process of these was also complicated. The large-scale production of paper tableware contributed to deforestation, biodiversity loss, climate change, and soil degradation, are the limitations that caused environmental challenges and

1

Sustainable Solutions: Edible Millet Tableware as a Substitute for Single-Use Cutleries in the Food Service Sector

by Central Library Avinashilingam

Submission date: 19-Jun-2025 03:21PM (UTC+0530)
Submission ID: 2338763921
File name: Millet_Tableware.docx (2.47M)
Word count: 55696
Character count: 294772

Sustainable Solutions: Edible Millet Tableware as a Substitute for Single-Use Cutleries in the Food Service Sector

ORIGINALITY REPORT

7%	4%	5%	1%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ncbi.nlm.nih.gov Internet Source	2%
2	Devatha Manivel, Raajeswari Paramasivam. "Sorghum spoons enriched with selected edible flowers: A sustainable alternative to conventional cutlery in the food and tourism sectors", Biomass Conversion and Biorefinery, 2024 Publication	1%
3	"Light Metals 2023", Springer Science and Business Media LLC, 2023 Publication	<1%
4	psgcare.org Internet Source	<1%
5	safer.uct.cl Internet Source	<1%
6	G. Olamiti, T.K. Takalani, D. Beswa, A.I.O. Jideani. "Effect of malting and fermentation on colour, thermal properties, functional groups and crystallinity level of flours from pearl millet (Pennisetum glaucum) and sorghum (Sorghum bicolor)", Heliyon, 2020 Publication	<1%
7	Ashwani Kumar, Vidisha Tomer, Mukul Kumar, Prince Chawla. "Millets - Cultivation, Processing, and Utilization", CRC Press, 2024 Publication	<1%