

# Projetos da UTAD no âmbito do Combate ao Desperdício Alimentar

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- Envolvimento de Alunos Licenciatura, Mestrado e Doutoramento
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- Aires C., Saraiva C., Fontes M.C., Moreira D., Moura-Alves M., Gonçalves C. Food Waste and Qualitative Evaluation of Menus in Public University Canteens—Challenges and Opportunities. *Foods*. (2021). 10(10):2325. <https://doi.org/10.3390/foods10102325>



**Abstract:** Background: This study aims to evaluate food waste and menu quality in two canteens (A and B) from a Portuguese public university in order to identify challenges and opportunities to improve the food service. Methods: Food waste included the analysis of two canteens over 5 consecutive days by selective aggregate weighing. A qualitative evaluation of a 5-week menu cycle related to lunches was performed through the Qualitative Evaluation of Menus (AQE-d) method. Results: Both menus have “satisfactory” evaluations and lower adequacy to the dietary guidelines in criteria A, which evaluates general items from the dish, and in criteria B, which evaluates meat, fish and eggs. The calculated mean of food waste in both canteens exceeded the acceptable limit of 10%, except for the vegetarian (7.5%) dish in canteen A. The biggest waste was found in the vegetarian dish (16.8%) in canteen A. In meat dishes the conduit presents more waste (17.0%) than in fish and vegetarian dishes. Among these, the vegetables were the most wasted (25.3% and 27.9%, respectively). Conclusion: This work presents some insights to future interventions in the direction of a healthier and more sustainable foodservice.

**Keywords:** food waste; menu quality; canteen

- Gomes, A.; Saraiva, C.; Esteves, A.; Gonçalves, C. (2020) Evaluation of Hospital Food Waste—A Case Study in Portugal. *Sustainability*, 12, 6157.



**Abstract:** Food waste (FW) has been linked with nutrient intake, menu performance, food acceptability, costs and environmental impacts. This study aims to evaluate the FW in the wards of a Portuguese public hospital. The evaluation of the FW of lunch meals was performed during 21 days, to all new hospitalized patients ( $n = 105$ ) admitted in four hospital wards (Medicine (Med), Paediatrics (Ped), Oncology (Onc) and Orthopaedics (Ort)). For each patient, the type of diet and FW were evaluated during the length of hospital stay (covering 321 meals). The FW of the dish was calculated by the physical method by weighing and the soup by the method of visual estimation, evaluating before and after distribution. The patients have a mean  $3.1 \pm 2.2$  day length of hospital stay. In relation to the FW of the dish per ward, that in the Ped ward it was 72.6%, Med 47.5%, Onc 46.9% and Ort 58.4% ( $p = 0.027$ ). The FW for Ped soup was 67.1%, Med 30.9%, Onc 29.4% and Ort 35.2% ( $p = 0.018$ ). The FW values are high, especially in the paediatric ward. The institutions are unaware of the FW produced and given the magnitude of the problem it is necessary to implement effective measures.

**Keywords:** food loss; hospital; food service; hospital diets; nutrition

- Gonçalves, C.; Gomes, A.; Esteves, A.; Silva, J.A.; Saraiva, C.M. Food Safety and Food Waste in One Portuguese Public Hospital. *Proceedings 2021*, *70*, 36. doi: 10.3390/foods\_2020-07673



**Abstract:** The present study aims to contribute to sustainable development goals by increasing knowledge of food safety and food waste of meals produced by the cook-chill system in hospital units. The food waste (FW) of meals served at lunch was evaluated for all new hospitalized patients with light diet ( $n = 17$ ) and soft texture diet ( $n = 10$ ), during their hospital stay, using the physical method by weighing for dish and the visual estimation method for the soup. Samples of each diet (light,  $n = 3$ ; soft texture,  $n = 3$ ) were also collected in four different moments (after cooked, after cold transportation, after refrigerated storage and after hot regeneration) for detection and enumeration of *Listeria monocytogenes*, *Salmonella* spp. and *Staphylococcus aureus* and enumeration of *Escherichia coli*, *Clostridium* spp., *Bacillus cereus*, Enterobacteriaceae, total viable counts (TVC) at 30 °C, as well as pH, water activity, moisture, ashes and protein. The FW (%) of the light diet ( $n = 64$ ) was  $39.8 \pm 6.3$  in dish and  $14.9 \pm 5.4$  in soup, and of the soft texture diet ( $n = 51$ ) was  $65.1 \pm 9.0$  in dish and  $39.0 \pm 5.8$  in soup. Regarding the percentage of protein per meal, both light (8.73%) and soft (3.33%) diets presented on average values lower than those recommended by the WHO (10–15% protein). The value of different microorganisms varied along the production moments; however, the final products in the light diet (after hot regeneration) presented 1.34–1.73 log cfu/g of TVC. Counts of *Bacillus cereus* and *Staphylococcus aureus* were also obtained at low levels (less than 1 log cfu/g). Besides these results, the risk of foodborne diseases should be considered. The implementation of effective measures to increase food safety and reduce FW in hospital is crucial.

## Comunicações Orais

Gonçalves, C., Gomes, A., Esteves, A., Silva, A. & Saraiva, C. (2020). Food safety and food waste in one Portuguese public hospital. 1<sup>st</sup> International Electronic Conference on Food Science and Functional Foods session Food Safety and Sustainable Development. Sciforum, 4, x.

Aires, C., Gonçalves, C., Fontes, M.C., Esteves, A., & Saraiva, C. (2021). Food Safety & Food Waste in food services and catering. Webinar "Combate ao Desperdício Alimentar | Da Investigação à Indústria". IAPMEI, 9 de junho, online, Portugal.

Aires, C., Saraiva, C., Fontes, M.C., & Gonçalves, C. (2021). *Desperdício alimentar numa unidade de restauração coletiva*. Webinar: Sustentabilidade e Decisão Ambiental na Alimentação. Rede Campus Sustentável. 22 de junho

## Comunicações Poster

Gomes, A., Saraiva, C., Esteves, A. & Gonçalves, C. (2020). Avaliação do desperdício alimentar de um hospital público português. XIX Congresso de Nutrição e Alimentação nº 119, 9 e 10 de setembro, Edição Online.

Gomes, A., Gonçalves, C., Esteves, A. & Saraiva, C. (2020). Relação entre o tipo de dieta e a percentagem do desperdício alimentar em serviços hospitalares. XIX Congresso de Nutrição e Alimentação. nº 120, 9 e 10 de setembro, Edição Online.

Macedo R, Teixeira B, Gonçalves C. (2022) Does reducing salt content in childrens' soup have an impact on plate waste? XXI Congresso de Nutrição e Alimentação, 26 e 27 de Maio.

Aires C, Moura-Alves M, Fontes MC, Moreira D, Saraiva C, Gonçalves C. (2022) Avaliação do desperdício alimentar produzido ao almoço em duas cantinas universitárias. XXI Congresso de Nutrição e Alimentação, 26 e 27 de Maio.

- **WASTELESS - WASTE QUANTIFICATION SOLUTIONS TO LIMIT ENVIRONMENTAL STRESS.** (HORIZON-CL6-2022-FARM2FORK-01). Entidade Financiadora: European Comission. Financiamento: 5.458.538,75€ - 2023 - 2026

Carta para a

# Alimentação Saudável e Sustentável

2020



utad

## Princípios Orientadores

A Carta para a Alimentação Saudável e Sustentável da UTAD integra-se nos objetivos do Plano Estratégico da UTAD e pretende apoiar o desenvolvimento e prossecução da Agenda 2030 (16), da estratégia europeia "Farm to Fork" (17) e a defesa do Direito Humano à Alimentação Adequada (18), através de ações que obedecem aos seguintes princípios orientadores:



1

Assegurar o acesso a uma alimentação saudável, equilibrada e variada, tendo em consideração as necessidades do indivíduo e da sua situação no ciclo de vida

2

Garantir e segurança alimentar

3

Promover a sustentabilidade alimentar e a redução do desperdício alimentar

4

Promover o aumento da literacia alimentar

5

Promover a capacitação dos diferentes elementos da comunidade académica para a concretização de uma alimentação saudável e sustentável