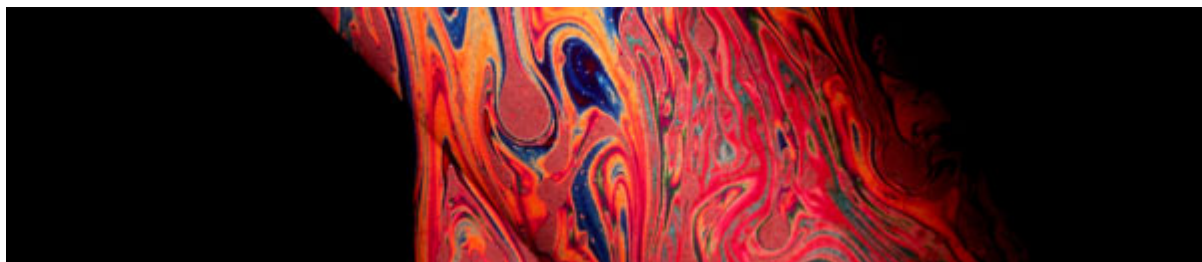


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[Využití pevného odpadu z pasivní zóny skládky do upraveného výluhu kombinací recirkulace výluhu a objemového činidla]

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Real evidence of the Municipal Solid Waste (MSW) decomposition process is the emergence of pollutants as leachate, which has a chemical composition that is difficult to degrade (recalcitrant compounds) and causes pollution of water bodies. On the other hand, waste from the passive zone landfill is not utilized at all. The aim of this study was to determine the effect of adding solid waste from landfill passive zone as bulking agent to treat fresh leachate with a combination of the recirculation process. MSW + bulking agent (70%: 30%, v/v) was recirculated using fresh leachate with a flow rate of 1 L/min for 30 days. Reactor without recirculation and bulking agent was used as control.

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Effect of chemical additives (coagulants) on the nutritional quality of compost prepared from poultry litter

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Abstract

This study was conducted to know about the nutritional quality of poultry litter amended with chemical coagulants after composting. For this purpose, chemical coagulants (i.e. Aluminum Sulphate and Aluminum Chloride, a dosage of 45g /chick) were applied in the selected poultry farms. Three types of poultry litter (i.e. treated with Aluminum Sulfate, Aluminum Chloride and untreated waste/control) were collected for compost and characterized for different macro and micro nutrients. It was observed that pH, EC, organic carbons were decreased while the nitrogen content was increased in chemically treated composts. The percentage difference in pH was -6.5%, -10.5% and -11.3%; -EC 6.1%, -19.3% and -15.6%; organic carbon -12.9%, -20% and -20%, while nitrogen was +24.6%, +28% and +25.2% for control compost, Al₂SO₄ treated litter compost and Al₂Cl₃ treated litter compost. Furthermore, the comparative analysis showed the sequence of high nutrition as control > control compost > Aluminum Chloride treated compost > Aluminum Sulfate treated compost. The recorded metal contents of control and composts were within the permissible limits set by USEPA and considered safe for agriculture. One-way anova among control and compost group showed significant ($p = .000$) effects while the interaction showed a non-significant difference ($p = .744$). However, the extensive and regular application of poultry litter may cause metal contamination. Hence, to ensure its benefits as a soil conditioner, it was recommended to implement management strategies such as chemical amendments of poultry litter, proper composting and regular monitoring of the poultry litter application into the soil.

Keywords: Aluminum Sulfate (Al₂SO₄); Aluminum Chloride (Al₂Cl₃); Amendment; Poultry Farms.

1. Introduction

In Pakistan, the poultry industry is one of the most dynamic, well-organized, growing and profitable agro-based sectors¹. Due to rapid expansion in the poultry sector, poultry litter production is also increasing. Poultry litter is a combination of different materials as feathers, feces, waste feed, and bedding material etc. Poultry litter is also considered as a soil builder because of its high nitrogen and organic matter that can boost plant growth².

Recently, poultry litter is receiving more popularity as organic fertilizer due to the high cost of inorganic fertilizers coupled with the limited ability of inorganic fertilizers to improve soil quality^{2,3}. In spite of the fact that farmers use poultry litter as organic fertilizer, it contains potentially harmful metals that are also used as feed additives, for the growth of broilers and to

Retail Chains Under the Food Waste Spotlight: the Case Study Of the Czech Republic

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Abstract

Retail is an intermediary between food producers and consumers and can influence other actors in the agri-food chain. The authors explored the volume of wasted food in the large food stores in the Czech Republic as well as the retail chains' strategies and barriers to reduce it. At the same time, the main reasons for food waste in Czech households were examined. Consumer-oriented retail chain activities were confronted with the reasons for household food wasting and whether a parallel could be found between certain retail and household activities was discussed. Despite the fact that the share of food waste compared to food quantity sold is rather small, the total annual volume of lost food is enormous. The retail chains indicated strategies focused on internal processes as well as toward external entities. The most frequent reason for food wasting mentioned by consumers is over-purchase. Only a negligible portion of them indicated that the reason is purchases made under pressure, such as discounts or child demands. One can consider whether consumers are really not un-pressured when shopping, or if retail marketing policies are so sophisticated that customers buy more than they need without perceiving it. Unfortunately, reducing promotions and discounts as a means of waste reduction was not mentioned by retail chain managers. For further progress, adjustments in legislation are recommended, as well as media education aimed at civic responsibility to increase consumer cooperation.

Key words: retail chains; food waste; prevention strategies; consumers attitudes

Introduction

Food waste becomes a phenomenon in developed countries. Moral human values should lead to minimizing waste to the lowest acceptable level. In the EU the efforts to reduce food waste and to transit to sustainable food system are supported by several legislative acts. Based on the directive EUI,¹ member states should take measures to significantly promote the prevention and reduction of food waste throughout the food chain by 2030. Such a challenge should cover the responsibilities of all actors in the food system.

The methods of obtaining household food supplies have significantly changed over the last several decades in the Czech Republic. Following the previous political change, food assortment displays have been significantly enriched, the retail network expanded, and food purchase has thus been considerably facilitated. What was once a "sacred gift" and often produced by households themselves as recently as the 1980s, simply became one of many consumer categories.

Large food stores (LFS) such as hypermarkets, supermarkets and discount stores are the main food shopping destination for 70 to 90% of Czech consumers, depending on the assortment². Fruits and vegetables were preferably purchased by 90% of consumers in LFS in 2017, for bakery products the share reached 78%, while for meat and cheese the shares accounted for 72% and 90% respectively. All mentioned figures showed a 3 to 5 percentage point increase compared to the previous five years.

There is a rich literature focused on wasted food in households. The authors show that households generate a significant amount of loss – according to the Fusions project,³ about 52% of food waste from the entire food supply chain falls on households; according to Gustavsson et al.⁴ waste amounts to about 40% of food lost at the household level.