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Global trade: is the European Union ready to manage the potential risks of ethnic food?

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Abstract

The European Union has established a rigorous system to control food imported from third countries and ensure consumer safety. However, the illegal trade in prohibited food items remains a significant issue. Non-compliant food, often counterfeited through false labeling, can bypass checks at border inspection points, choosing the least monitored entry points. These products pose a threat to public health, as they may contain products of animal origin, undeclared allergens, or come from unauthorized facilities.

A recent example is the investigation initiated by the monitoring plan, which uncovered the illicit trade of food of animal origin in some ethnic shops. The Local Health Authority Naples 1 Center carried out extensive inspections of commercial establishments, finding that some foods labeled as wheat- or soy-based snacks were, in fact, prohibited food items from China. The Italian labels reported false information, hiding the real composition of the products.

The operation led to the seizure of tons of food, including fish products and difficult-to-identify foods. The analysis detected undeclared allergens and, in some cases, traces of the African swine fever virus, although inactive. Following these discoveries, the Directorate General for Food Safety launched a program of coordinated controls at national level to combat illegal trade. This episode highlights the need to use advanced technologies and strengthen national and international collaboration to protect consumers.

Introduction

For over two decades, the European legislator has established criteria to authorize third countries and their regions for the entry of food intended for human consumption into the European Union (EU), based on health and food safety considerations. At border control posts (BCPs), competent authorities perform targeted inspections at determined frequencies, guided by risk-based criteria. This system of official border controls ensures a significant level of assurance regarding the compliance of goods entering the EU. While this system of official border controls provides a high level of assurance regarding the safety and legality of imported goods, it remains insufficient in preventing the entry of products subject to absolute bans. These prohibited goods often exploit vulnerabilities in the control system, using concealment tactics and accessing the EU through less regulated entry points to evade detection. Starting with Decision 2002/994/EC (Commission of the European Communities, 2002), which addressed protection measures for animal products imported from the People's Republic of China (P.R.C.), and extending to more recent regulations such as Commission Implementing Regulations (EU) 2021/404 and 2021/405 (European Commission 2021a, 2021b), the EU has consistently outlined authorized third countries, territories, and regions from which animals, germinal material, and animal products for human consumption may be imported, in accordance with Regulations (EU) 2016/429 and (EU) 2017/625 of the European Parliament and Council (European Parliament and Council of the European Union, 2016, 2017).

In response to these challenges, Campania Region has incorporated monitoring plans within its 2023-2027 Multiannual Regional Control Plan to ensure the proper marketing of animal-origin food products from third countries. Notably, in 2023, during official controls outlined in the "monitoring plan for species identification in meat products from non-European countries", concerns were raised regarding the circulation of prohibited food items in businesses under the jurisdiction of the Local Health Authority Naples 1 Center.

Materials and Methods

To assess the compliance of foreign goods and identify potential illicit trade channels, investigative activities were carried out, which involved 17 visits to ethnic retail shops of various nationalities (primarily Pakistani, Ukrainian, Filipino, and Chinese), distributed throughout the eastern area of Naples. To ensure a coordinated inspection of suspicious establishments, a comprehensive plan for official controls was developed. This included training sessions for staff and formation of dedicated inspection teams. Additionally, before conducting on-site inspections, a thorough review of

authorized Chinese establishments in the TRACES-IMSOC database was performed, facilitating the identification of legally imported food products.

To denounce the widespread fraudulent practice of disguising foods of animal origin by presenting them as of plant origin by affixing new labels with false translations of the original ones, at the operators subjected to controls the labels were translated automatically and simultaneously thanks to the use of applications (Apps: Google Translate) that exploit artificial intelligence. This system allowed to check the labelling conformity to the community legislation (European Parliament and Council of the European Union, 2011).

To verify the suspicion that improper labeling was being used to mask illegal food imports, 46 samples were collected and analyzed at official II.ZZ.SS. (Istituto Zooprofilattico Sperimentale - Zooprophyllactic Institute) Laboratories. These samples were classified as follows: 17 samples for species identification (9 from meat-based products, 8 from processed fishery products) by PCR assays according to Italian Accreditation Body (ACCREDIA) procedure for identification of animal species and seafood species; 29 samples of pork-based products for the identification of the African Swine Fever virus (ASF) by real-time PCR assays which targets the B646L gene, encoding the ASF virus structural protein p72, in agreement with WOAHA (2024) .

Following the identified non-conformities, a thorough investigation was conducted using the TRACES-IMSOC database by referencing the name, business name, and address provided in Chinese, which can be accessed through the European Commission's community IT system (<https://webgate.ec.europa.eu/tracesnt/directory/listing/establishment/publication/index#!/search?countryCode=CV>).

Results and Discussion

In the EU, there is a high level of attention towards fraudulent acts that can deceive or mislead consumers or even harm their health. Also in Campania Region, the veterinary service is particularly active in the search for food business operators who can contribute to the entry of non-compliant foods. From 17 visits to ethnic retail outlets of various nationalities (mainly Pakistanis, Ukrainians, Filipinos and Chinese) in Naples, it emerged that five Chinese food shops were selling irregular food products, specifically animal-origin food products disguised as "salty snacks with sweeteners, wheat-based snacks, and soy-based snacks". Therefore, the inspections confirmed a widespread practice of concealed as animal-origin food products by mislabeling them as plant-based, often altering labels with inaccurate translations. To assist in detecting these irregularities, artificial intelligence-powered applications were employed for automatic, real-time label translation.

The formal review of the Italian-language information revealed a standardized approach across all product categories (Figure 1).

Labels consistently displayed the same food designation (eg. salty snacks), identical plant-based ingredients (wheat flour, soy, sugar, etc.), uniform storage and packaging disposal instructions, a persistent omission of the production facility's details, and a repeated declaration of origin stating "produced in China". Furthermore, there was a persistent omission of many mandatory labeling elements, such as: the name, business name and address of the "food business operator responsible for the information" (a mandatory requirement under Article 9 of EU Regulation No. 1169/2011), defined as "the operator under whose name or business name the food is marketed or, if that operator is not established in the Union, the importer into the Union market" (Article 8.1 of EU Regulation No. 1169/2011); in addition, there was an absence of allergen information and the lack of a "use by" date or minimum shelf life. In particular, label translations revealed the presence of ingredients known to trigger allergies or intolerances, prompting an expanded risk assessment to include substances with scientifically proven allergenic effects.

In contrast, the labeling information expressed numerically (net weight, production dates, batch numbers if available, and nutritional declarations presented in tabular form) was found to be perfectly consistent with the original label. This precision in numeric details was likely necessary, as

discrepancies in numerical data, unlike alphabetical ones, would have been immediately noticeable and detectable during an inspection.

As regards the modalities of entry of goods into the EU from third countries, EU regulations establish that the P.R.C. is authorized to export food products to EU countries solely from authorized establishments with an Approval Number and listed in the TRACES system, which is continuously updated. At the time of the investigation, the TRACES-IMSOC lists of authorized establishments for exporting meat and meat-based products to EU countries were as follows:

- for the category “Meat from poultry and lagomorphs”, 28 establishments were authorized, primarily located in Shandong province, with fewer establishments in Heilongjiang and Shanxi provinces;
- for the category “Meat products”, 37 establishments were authorized, all located in Shandong province; these establishments were solely authorized for the production of poultry-based meat products.

To this regard, information from the labels of the sampled products regarding the locations of Chinese production facilities (region, city, streets) was extracted. This enabled the mapping of their geographical positions, revealing that none of these facilities were situated in provinces authorized to export to the EU. A subsequent search in the TRACES-IMSOC system for the facilities identified on the Chinese-language labels showed that none were listed in the official records. Most of the production sites were located in the provinces of Zhejiang, Fujian, Hubei, Jiangsu, and Hunan.

In summary, therefore, the main non-compliance issues identified during the investigation were as follows:

1. misleading or incomplete consumer information: irregularities in the labeling of food products intended for final consumers, including inconsistencies and/or incomplete translations between the original Chinese-language packaging and the Italian-language labeling. Additionally, the absence of Italian-language labeling constitutes a violation of EU Regulation No. 1169/2011;
2. absence or incompleteness of essential commercial documents (e.g., transport documents, invoices) required to certify the lawful origin of marketed food products. These deficiencies constitute serious violations of traceability requirements as established by Articles 18 and 19 of Regulation (EC) No. 178/2002 (European Parliament and Council of the European Union, 2002);
3. hygiene non-conformities: severe breaches of general hygiene standards, including the storage of food products beyond their expiration dates, posing a potential risk to consumer health under Article 14, paragraphs 2 to 5, of Regulation (EC) No. 178/2002. Additionally, food products were found in poor condition and infested with parasites, violating Article 5 (b-d) of Law No. 283/1962 (Italian Republic, 1962);

The consequent measures led the inspection personnel to place large quantities of animal-origin food products, primarily pre-packaged, under official detention pursuant to Article 138 of Regulation (EU) 2017/625, including: i) Frozen meat from domestic ungulates and poultry species, ii) Meat products, such as sausages and meat extracts from domestic ungulates and poultry species, iii) Frozen and processed fishery products, iv) Eggs and their derivatives, and v) Dairy-based beverages (Table 1).

The official detention enabled a detailed classification of violations for each product/matrix, distinguishing between administrative and criminal offenses and determining the necessity of further analytical investigations. Risk analysis considered ongoing import restrictions from the P.R.C. due to concerns over the spread of infectious diseases and contamination levels exceeding EU legal limits, posing potential risks to food safety and public health.

Species identification analyses revealed the presence of animal-derived matrices whose import is prohibited for health and food safety reasons, specifically meat from species other than poultry (bovine and swine). Specifically, of the 9 samples analyzed for species identification, the following organisms were identified: *Sus scrofa*, *Anas platyrhynchos*, *Anas luzonica*, *Gallus gallus*, *Bos taurus* (Figure 2).

Further analyses performed for species identification revealed the presence of undeclared allergens in the Italian labels, including fish and mollusk-derived products, in 8 of the tested samples. The identified species included *Channa argus*, *Sthenoteuthis oualaniensis*, *Cirrhinus molitorella*, *Theragra chalcogramma*, *Larimichthys polyactis*, *Sinonovacula constricta*, *Nibea soldado*, and *Liparis tanakae* (Figure 2).

Additionally, real-time PCR analysis was carried out on 29 samples to detect the presence of the ASF virus, with 12 samples testing positive. The real-time PCR identifies viral DNA but does not imply infectivity and, therefore, viruses ability to cause infection (Figure 2).

During the inspections, official control personnel issued 5 administrative violation reports for breaches of Articles 18 and 19 of Regulation (EC) No. 178/2002, and 2 additional reports for non-compliance with Article 4 and Annex II of Regulation (EC) No. 852/2004 (European Parliament and Council of the European Union, 2004).

Upon conclusion of the investigation, in accordance with the penal reserve clause outlined in Article 5 of Legislative Decree No. 24 of February 2, 2021 (Italian Republic, 2021), “unless the act constitutes a more serious offense”, the seizure of approximately 4 tons of food products of Chinese origin—prohibited from importation—was reported to the Competent Judicial Authority. Consequently, legal proceedings were initiated against five operators for alleged offenses, including commercial fraud under Article 515 of the Criminal Code and customs violations related to smuggling.

Following the confirmed illegal importation of animal-derived products from the P.R.C., the Regional Competent Authority was promptly notified, and the information was disseminated through an *information notification for attention* on the iRASFF platform via the Regional Food Alert Node. In light of the serious irregularities found in Campania Region, the Ministry of Health, issued a ministerial note on 22.12.2023, mandating a nationally coordinated inspection campaign targeting retail outlets and local markets selling ethnic food products presenting similar non-compliances. It involved multiple authorities, including CC NAS (Nucleo Antisofisticazioni e Sanità - Office for the prevention of the adulteration of beverages and foodstuffs), Veterinary Services and SIAN (Servizio Igiene degli Alimenti e della Nutrizione - Food and Nutrition Hygiene Service), UVAC (Uffici Veterinari per gli Adempimenti Comunitari - Veterinary Offices for Community Compliance) and BCPs, II.ZZ.SS., and IZSUM (Istituto Zooprofilattico Sperimentale dell'Umbria e delle Marche, with the National Reference Center for Asfivirus and Pestivirus Diseases) to conduct enhanced official controls—at least 30 inspections per region and 15 per autonomous province—during the first quarter of 2024. These joint inspections aimed to detect food products unlawfully imported from third countries, with particular attention to meat and meat-derived products due to their potential role as vectors for zoonotic pathogens. Considering the concurrent ASF emergency in Italy, the ministerial note extended surveillance measures to include an extraordinary monitoring program for the detection of ASF virus in irregular food products containing porcine-derived organic material. These findings suggest that the inspected retailers in Naples are not the primary actors responsible for the illegal importation but rather serve as terminal nodes within a structured network engaged in illicit food trafficking from the P.R.C. Evidence indicates that the non-compliant goods were likely co-transported with legally imported products from the outset, utilizing maritime container shipments, cargo flights, or land routes following customs clearance in other EU member states, before reaching wholesale storage and commercial distribution facilities. It is reasonable to hypothesize that the packages lacking Italian-language labeling correspond to those that evaded fraudulent re-labeling operations, ostensibly carried out by the retail operators themselves. This hypothesis is supported by the discovery of rolls and bundles of adhesive labels stored alongside pre-packaged products within secondary packaging (often in still-sealed cartons) (Figure 3). These findings suggest that retailers receive an integrated supply of illicit food products along with counterfeit labeling materials, with the final application of these fraudulent labels delegated to the retailers.

Conclusions

Given the widespread distribution of illicit food products through complex and multilayered supply chains, it is imperative for Competent Authorities to adopt increasingly precise and data-driven investigative methodologies. Regulatory strategies must extend beyond the final distribution points, which often represent the least effective stage for ensuring full traceability of food products. Due to the intricate nature of agri-food supply chains, strengthening inter-agency cooperation and reinforcing international alert networks are critical to effectively mitigating risks associated with fraudulent and deceptive practices, particularly those with transboundary implications. Furthermore, the refinement of food safety control measures should integrate innovative technologies, such as artificial intelligence, which can serve as a key enabler for optimizing data processing, generating traceability models, and facilitating the rapid and reliable assessment of emerging risks.

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Parliament and of the Council, Council Regulations (EC) No 1/2005 and (EC) No 1099/2009 and Council Directives 98/58/EC, 1999/74/EC, 2007/43/EC, 2008/119/EC and 2008/120/EC, and repealing Regulations (EC) No 854/2004 and (EC) No 882/2004 of the European Parliament and of the Council, Council Directives 89/608/EEC, 89/662/EEC, 90/425/EEC, 91/496/EEC, 96/23/EC, 96/93/EC and 97/78/EC and Council Decision 92/438/EEC (Official Controls Regulation). In: Official Journal, L 95, 7/04/2017.

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Figure 1. Photographic survey of a label commonly found during visits.

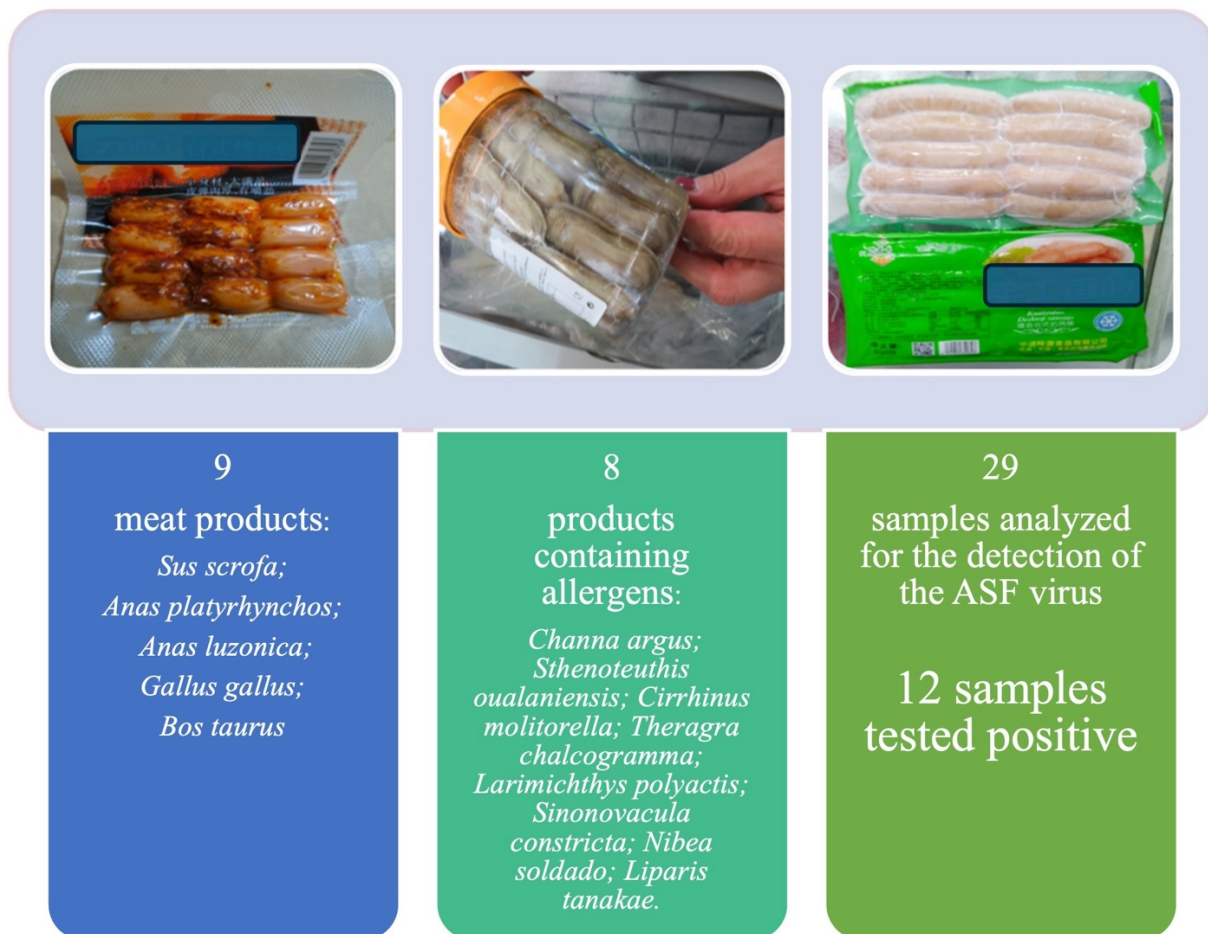


Figure 2. Schematic representation of the main results from the molecular biology analysis.



Figure 3. Photograph taken during a visit showing the presence of rolls of labels supplied by the manufacturer to the retailer.

Table 1. Types of food subject to official detention.

Foods, mainly pre-packaged and kept at room, refrigerated and frozen temperatures	Fresh meat and meat products, both from poultry and ungulate species (pork and beef)
	Seafood products
	Drinks containing whey
	Unidentifiable matrices due to lack of morphological or labeling information
	Non-animal foods (e.g. confectionery, noodles, etc.)