

## Alternative Proteins and Novel Foods: EU Food Regulation and Safety Issues



**Author: Ainhoa Bilbao // GAIKER**

Consumers are evolving towards healthier and more sustainable eating habits and are looking for environmentally friendly food options. Therefore, alternative proteins, such as those derived from sources other than conventional animal sources, i.e. plant, microbial, oceanic, fungal and insect sources, are of great interest and have undeniably captured their attention.

The food industry has taken note of this growing trend and is moving to meet the demand through the development and production of alternative proteins. However, the development of alternative proteins poses challenges for food industry operators.

### How are alternative proteins regulated in Europe?

Although not all alternative proteins are considered novel, those that do not have a history of consumption to a significant degree before 15 May 1997 will be treated as novel foods requiring pre-market authorisation under Regulation (EU) 2015/2283. Therefore, it is essential to conduct safety assessments of the protein to cover potential food safety risks, including toxicity, allergenicity, safety of its production method and dietary exposure arising from consumption. Furthermore, it is important to note that alternative proteins used as feed are not subject to the EU's novel food regulation, as they are instead regulated according to European feed rules (while food and feed obtained via genetic engineering techniques are themselves regulated differently). However, due to consumer demand for information on the use of non-GMO feed, some producers have adopted specific private standards to ensure transparency. It is possible that similar requests by consumers could be made for alternative proteins used in feed in the future.

### Safety issues of alternative protein sources

Each protein source has its own advantages and in some cases limitations in terms of nutritional and safety aspects, thus a case-by-case approach is required to provide

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with sufficient data to oversee that technological progress in this area is balanced with robust safety standards. Food safety must therefore be a primary requisite when companies develop alternative proteins and food products, whether novel or not. Quality and safety assessment, including toxicological, nutritional and allergenicity analyses, are integral parts of the LIKE A PRO in vitro tests to be carried out on the obtained alternative protein extracts and the final products formulated in the project.

The expected outcomes will contribute to:

- provide useful scientific data and information about change in nutritional value (essential amino acid profile and branched-chain amino acids- BCAAs) or nutritional disadvantages (antinutritional factors: protease inhibitors and polyphenols)
- verify, on the basis of the scientific evidence available, that final products formulated with alternative proteins do not pose a risk to human health (by genotoxicity and allergenicity in vitro assays)
- enable food businesses to easily categorize their alternative proteins products and follow the legal requirements in terms of safety attributes.