Original Article

Focusing on novel foods: Their role, potential and safety

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Novel foods

Novel foods are ones that address newer interests in food taste and appreciation, convenience and utility, and health. They may be a way of repositioning older better known and culturally rooted foods, or they may be altogether new formulations or recipes with new meaning for the consumer.[1]

Role and potential

If we systematically consider the scope for sustainable and healthy human communities, we arrive at an extensive list of general and particular possibilities and roles for foodstuffs (Table 1).[2] These range from how we might eat in a way to safeguard the future food supply, to food adequacy, for those with marginal intakes, to the reduction in the burden of disease at all stages of economic development, and to the complex array of health problems that may shorten lifespan and increase morbidity.

Such an analysis provides much stimulus to the health-care sector in its quest for more preventive, affordable and effective reductions in the burden of disease, and to the food supply industry, which seeks to provide foods in a way that is enjoyable, safe, secure and, hopefully, health-promoting, aside from being profitable.

Safety

The development of newer or novel foods brings with it elements of the unknown and therefore risk. When it comes to foodstuffs and beverages, it is expected that this risk will be negligible, in contrast to medicinals or pharmaceuticals where some risk is accepted for benefit in the face of a disorder or disease.

As a consequence, it is necessary to have an approach to the development of novel foods that minimizes risk and allows for the evaluation of health outcomes. The requirements in such an approach are enumerated in Table 2.

Implications for regulators, food producers, educators and health-care workers

The field of novel food development is extremely dynamic at present, greater that at any other time in human history; therefore, a regulatory approach that is robust and coherent for all players, and especially consumers, is critical.

References

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Table 1. Categorizing food-health relationships for the purposes of food product development[2]

Health category	Food characteristics
Disease related to environmental degradation and methods of food production	Eco-sensitive foods (e.g. produced in sustainable ways; biodegradable or edible packaging; identifiable biosecurity for animal-derived foods; nature of genetic material)
Food shortage and PEM	Technologies that minimize post-harvest loss, increase shelf life and maintain palatability
Disease related to protein quality, fat quality and micronutrient status	Nutrient-dense foods; fish or its plant or microbial food surrogates
Physical inactivity and health (especially over fatness; also loss of lean mass, particularly muscle)	Food of low energy density and high nutrient density
Phytochemical deficiency disorders including menopause, macular degeneration, osteopenia	Greater emphases on plant-derived foods and their variety
Diseases of changing demography	
Ageing	Anti-ageing food, especially ones to delay body compositional change (bone, muscle and fat); loss of sensory function; decline in immune function; proneness to neoplastic disease; decline in cardio-respiratory function; and decline in cognitive function; and anti-inflammatory foods
Rapid loss of traditional food culture and Acquisition of new food cultures	Maintenance of traditional foods in convenient, affordable and recognizable form
New psycho-social stressors and mood change	Food that favourably affects mood
Food borne illness and the microbiological safety of foods	Pre- and pro-biotic foods. Immune system enhancing foods
Illness related to the chemical safety of foods (e.g., pesticide residues)	Regional origin and certification of foods

PEM, protein-energy malnutrition.

Table 2. An approach to the development of novel foods to minimize risk

1. Consider the health outcome in question.
2. Select a plant food or foods that confer these characteristics, preferably with an established food cultural base.
3. Formulate a food for trial.
4. Carry out a risk evaluation.
5. Conduct a food trial using biomarkers and/or health outcomes.
6. Develop an appropriate monitoring and surveillance strategy.
7. Seek regulatory approach as novel food for safety.
8. Formulate a food-based educational and informational framework, with or without health claims (depending on regulatory regime).
9. In all cases, consider affordability and encourage sustainability