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## 21769 | Microbiological Challenges of Insect-derived Food Products

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**Background & Aim:** Insect-derived food products have been proposed as a potential solution to address demographic growth in western countries. Insects are regarded as a nutritious and markedly more sustainable food source compared to traditional animal protein sources (1). Recently, the European Commission approved four insect species for use as food ingredients in the EU market, sparking increased interest in their production for insect-based products. However, there are still barriers to overcome, particularly concerning the potential microbiological hazards they may pose (2). The goal of this study was to assess the literature, identifying production stages that may raise concerns and examining the associated microbiological risks. **Methods:** A search was conducted in the databases PUBMED and Google Scholar (up to May 2023), as well as in major food authorities (EFSA and FAO), using the keywords “edible insects” and “microbiology”. The inclusion criteria comprised safety reports, reviews, and systematic reviews, that aligned with our research goals. **Results:** Microbial contamination and/or growth may occur at any stage of insect production. Several major poor practices and microbial hazards were identified in each stage: i) Insect creation, inadequate bio-safety conditions, with spore-forming bacteria (e.g., *Bacillus cereus*, *Clostridium perfringens*), and non-typhoid *Salmonella*; ii) Insect slaughter, contact between insects and excrement (e.g., pathogenic *Escherichia coli*); iii) Processing phase, contamination by food handlers (e.g., *Staphylococcus aureus*); iv) Transport: Refrigeration failure, with spore-forming bacteria (e.g., *Bacillus cereus*, *Clostridium perfringens*) (2,3) **Conclusions:** While every stage in insect production is critical, the analysis of literature on production stages and microbiological risks reveals that, with adequate control and prevention measures throughout the entire production chain, insects can indeed emerge as a safe and sustainable protein alternative in our diet.

**Keywords:** Edible Insects, Microbiology, Microbiological Hazards, Food Chain.

**References:**

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