

## Abstract

# Micronutrient Content of Plant-Based Meat Alternatives Available in the UK and Ireland: Product Audits (2021 and 2023) <sup>†</sup>

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**Abstract:** Knowledge of micronutrient content of commercial plant-based meat alternatives (PBMA) is limited. This study aimed to identify changes in micronutrient content of PBMA over time, as well as how micronutrient levels of PBMA compare to similar meat products using product audit data. An online audit of PBMA in Tesco and Sainsbury's was conducted in 2021 and 2023. On-pack information was extracted and inputted into Excel. Products were categorised, with categories containing on-pack micronutrient content for  $\geq 2$  products compared with similar meat products using data from Nutritics software and descriptive statistics applied. Nutrient claim thresholds were used to determine how many PBMA were eligible to make a 'source of' or 'high in' claim for vitamin B12 ( $\geq 0.38 \mu\text{g}$  and  $\geq 0.75 \mu\text{g}/100 \text{g}$ , respectively) and iron ( $\geq 2.1 \text{mg}$  and  $\geq 4.2 \text{mg}/100 \text{g}$ , respectively). Results: Around 7% of products ( $n = 23/351$  in 2021 and  $n = 22/324$  in 2023) reported vitamin B12 content on-pack and 8% of products reported iron content on-pack ( $n = 28/351$  for 2021 and  $n = 25/324$  for 2023). All products contained levels adequate to make a 'source of' claim, with around 22% (2021) and 41% (2023) of these products eligible to make a 'high in vitamin B12' claim and 14% (2021) and 28% (2023) eligible to make a 'high in iron' claim. Median vitamin B12 and iron content/100 g was higher in 2023 products for 5/6 and 4/5 categories, respectively, with no change in the other category. For 2023 data, PBMA had lower mean vitamin B12 contents/100 g in 4/6 categories compared to meat products (0.6–1.8  $\mu\text{g}$  for PBMA vs. 0.0–3.0  $\mu\text{g}$  for meat products). For all six categories (burgers, mince, beef, pork, chicken, and lamb), PBMA had higher mean iron contents/100 g than comparable meat categories (2.8–6.8 mg for PBMA vs. 0.4–2.7 mg for meat products). Magnesium, zinc, calcium, vitamin A, and folic acid contents were listed on  $\leq 1$  product per category. Discussion: Vitamin B12 and iron contents of the PBMA included in these audits appear to be increasing over time, however, levels of vitamin B12 need to increase to equate to those of red meat. Further fortification represents an option for improving the micronutrient profile of PBMA to reflect levels in comparable meat products.

**Keywords:** plant-based meat alternatives; plant-based meat analogues; micronutrients



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