

Tampons as a Source of Exposure to Metal(loid)s

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Introduction

Tampons are used by 50-86% of US women

Tampons can be contaminated with environmental chemicals through several mechanisms:
 -fertilizers and pesticides used in cotton farming
 -production process
 -packaging materials

To our knowledge, metal concentrations in tampons have not been measured

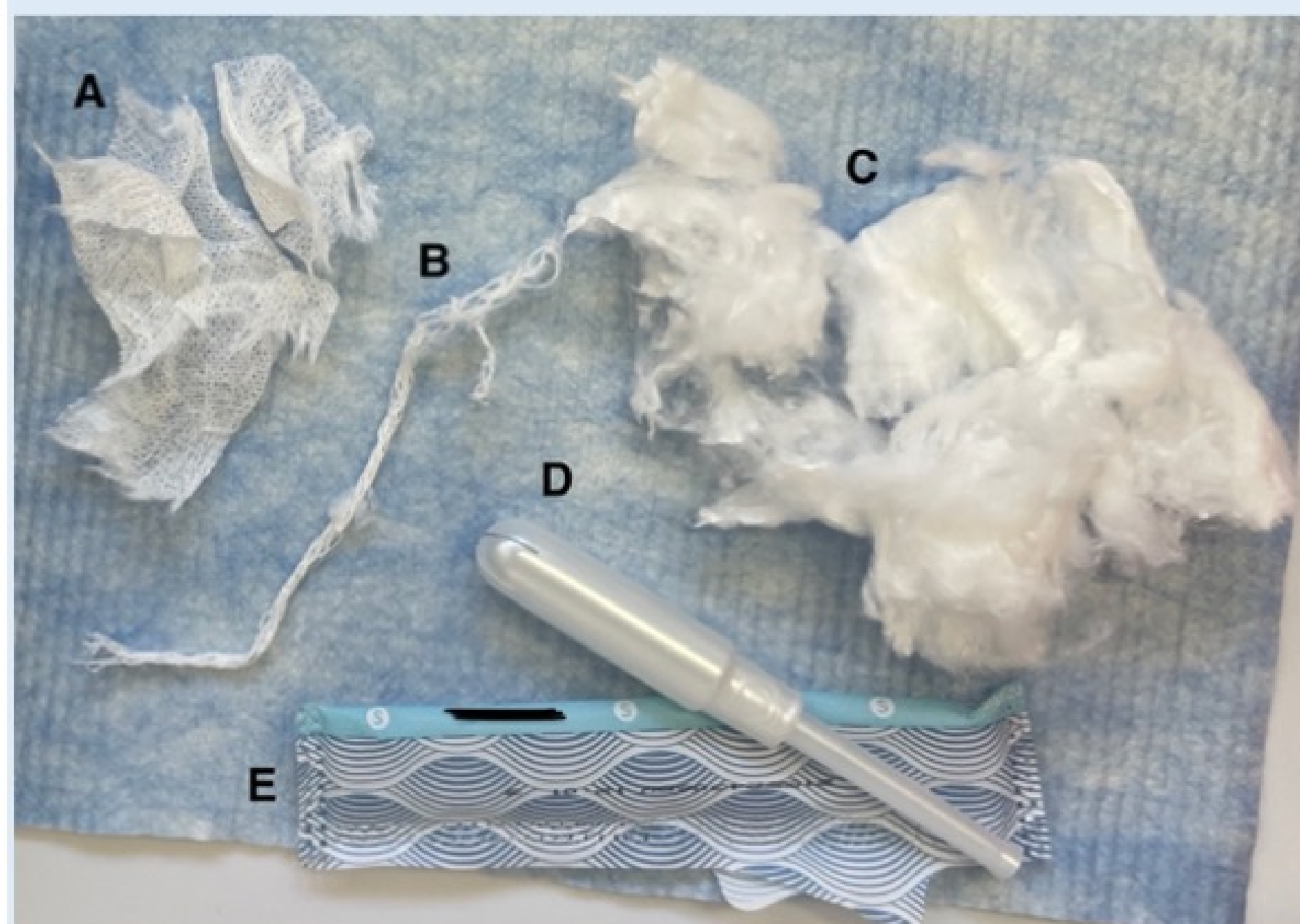


FIGURE 1: A tampon separated into its components: (A) netting material, (B) string, (C) inner core, (D) applicator, (E) wrapper

METHODS

- Analyzed duplicate 0.2-0.3g subsamples from 30 tampons (n = 60 samples)
- Microwave-assisted acid digestion
- ICP-MS

FIGURE 2: Distribution of metal concentrations in n = 60 tampon samples

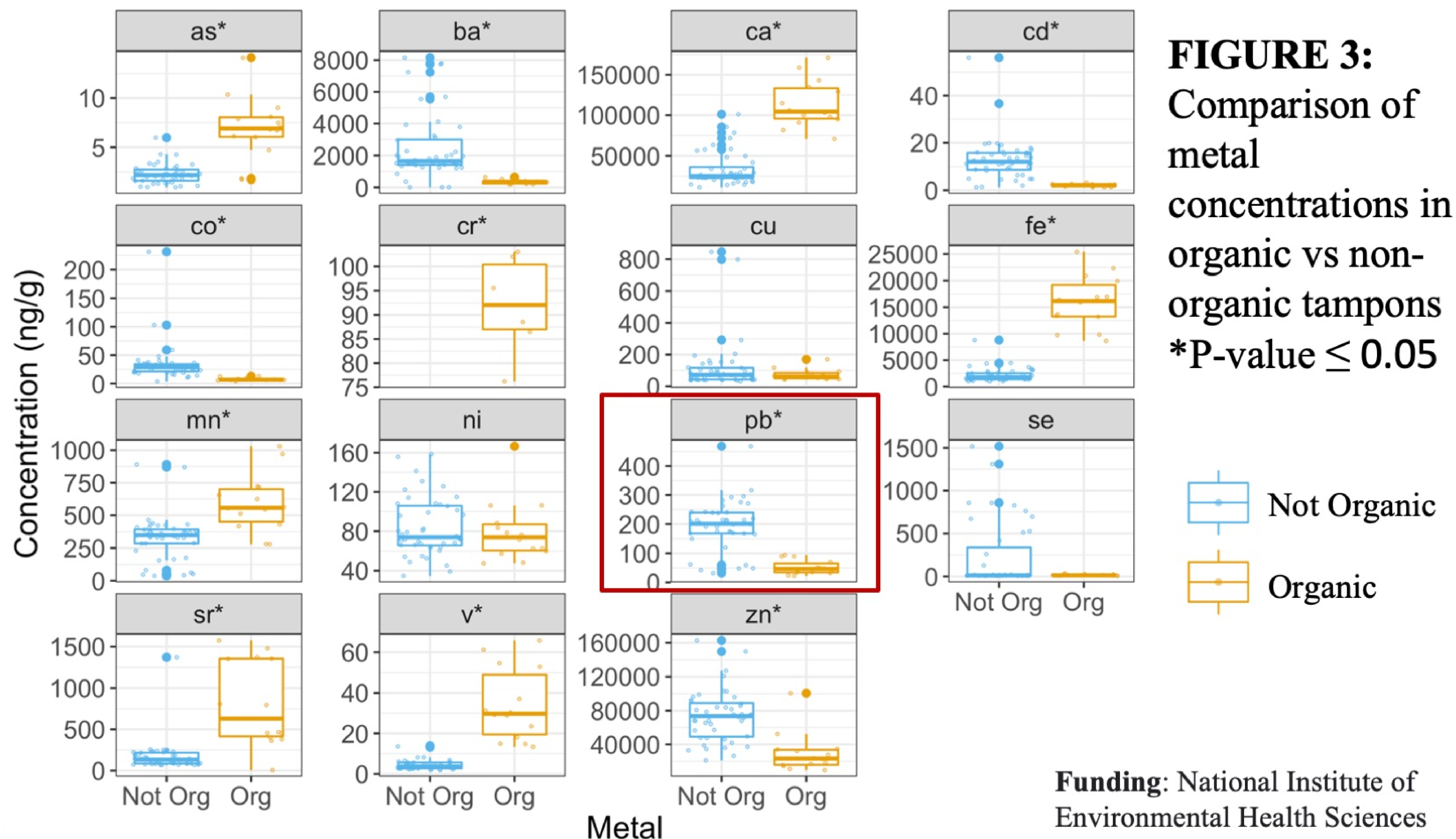
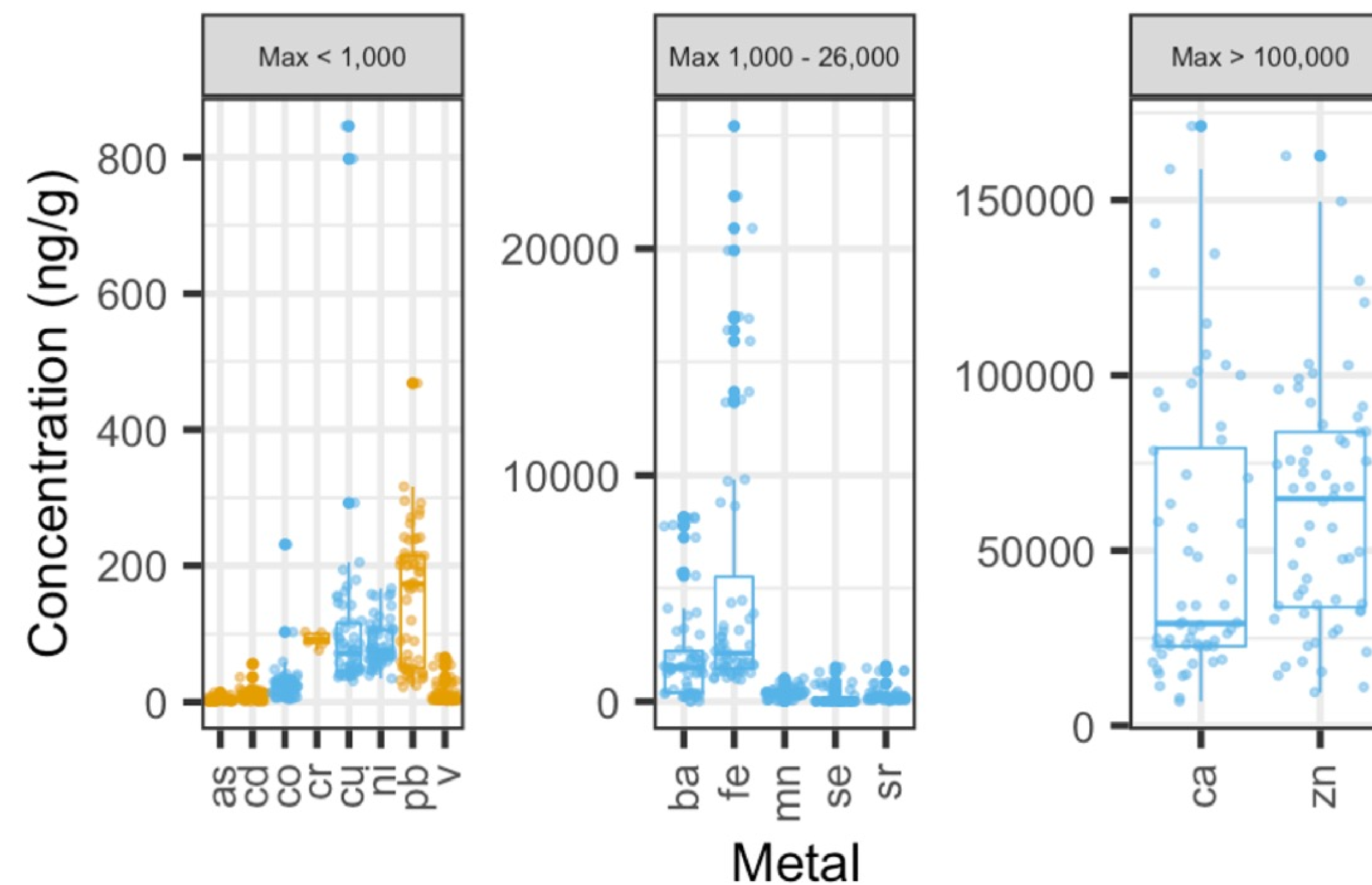


FIGURE 3: Comparison of metal concentrations in organic vs non-organic tampons *P-value ≤ 0.05

Results

Metal	n<MDL	Mean (SD)
As	3	2.73 (1.93)
Ba	0	1,086 (4.60)
Ca	0	38,067 (2.20)
Cd	0	6.74 (2.67)
Co	0	19.8 (2.17)
Cr	54	91.5 (1.12)
Cu	0	78.9 (2.00)
Fe	0	3,099 (2.68)
Mn	0	296 (2.38)
Ni	0	80.1 (1.44)
Pb	0	120 (2.24)
Se	1	29.8 (5.94)
Sr	0	190 (2.74)
V	0	6.37 (2.71)
Zn	0	51,681 (1.93)

TABLE 1. Concentrations in tampons (ng/g)

Conclusions

Future research is needed to determine:

- Concentrations of metals that leach out of tampons
- Concentrations of metals that can be absorbed vaginally
- Concentrations of other chemicals of concern

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