Coriander

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Abstract

Coriander in the HMI library has 297 reported results for lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, antimony, Co, Cu, Fe, Mn, Zn, V, Se, Ba, Be, Sr and Tl from 27 sources. WHO gems/food submissions reported lead in coriander as sold from 359 results in 5 reporting regions, with subgroup medians from 10 to 740 µg/kg. For cadmium, GEMS/Food gave subgroup medians from 32 to 273 µg/kg from 80 results.

1 | Coriander overview

Across 4 other studies of ordinary farms and markets, reported lead means and medians on an as-sold or fresh-weight basis ranged from 114 µg/kg (X-D et al. 2016) to 8,430 µg/kg (Ericson et al. 2020).[3,5] For cadmium, 4 studies on an as-sold or fresh-weight basis reported means and medians from 34 µg/kg (Pan et al. 2023) to 1,650 µg/kg (Islam et al. 2023).[7,8]

For a buyer the practical points are the form bought, the basis a result is reported on, where the coriander came from and the laboratory's reporting limit. Testing finds contamination but does not remove it.

2 | What counts as coriander

This page covers coriander in 3 forms kept separate in every comparison: coriander as sold (273 results), coriander powder or ground (22 results) dried and coriander (2 results).[1,2,3,4,5,6]

Results stay on the basis each source reports: as sold or fresh weight, dry weight, or unstated. Dry-weight, as-sold and unstated results are never pooled, and no moisture conversion is applied.

3 | How metals reach coriander

No study in the library compared coriander from contaminated and ordinary settings, so the routes by which metals reach it are not measured here.

4 | Which forms and regions measured lower

The hmi reference for lead in coriander as sold pools 23 subgroup units from 3 sampling families, with a median of between 26.6 and 48.7 µg/kg and a middle half spanning below 31.1 (lower quartile) and between 41 and 10,000 µg/kg (upper quartile).[1,6,9] for lead in coriander as sold, the reference median was between 4,470 and 4,470 µg/kg, with a middle half from between 50 and 70.9 to 8,430 µg/kg across 50 units.[1,3] for lead in coriander as sold, the reference median was between 4 and 10 µg/kg, with a middle half from below 10 to 100 µg/kg across 7 units.[1]

Among GEMS/Food reporting regions, coriander as sold had the lowest lead subgroup median in PAHO (19.3 µg/kg) and the highest in EURO (740 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in EURO (32 µg/kg) and the highest in PAHO (170 µg/kg).[1]

Targeted coriander as sold samples in PAHO had lead higher at 52.3 µg/kg, against 19.8 µg/kg for PAHO in the same study.[1] In another study, targeted coriander as sold samples in PAHO had lead higher at 50.1 µg/kg, against 19.8 µg/kg for PAHO in the same study.[1]

In one study, lead across 18 groups of coriander ranged from 280 µg/kg (Branded category, sample 2) to 8,190 µg/kg (Branded category, sample 3); the lowest is the lowest observed in that study, not an established sourcing preference.[13] In another study, lead across 4 groups of coriander ranged from 26.6 µg/kg (Vegetable market, washed (VMW)) to 48.7 µg/kg (Open-air roadside market, unwashed (OMUW)); the lowest is the lowest observed in that study, not an established sourcing preference.[6]

5 | Processing, cooking and preparation

No processing study for metals in this food is in the library yet.

6 | Mitigation for coriander

Lot testing against the applicable limit is the check that can be verified.

7 | Trade-offs and limits of controls

Metals do not move together, so a lot that passes a lead limit says little about cadmium, arsenic or nickel unless those are tested as well.

8 | Testing coriander for metals

Results depend on the method and its reporting limit. Reporting limits for lead ranged from 1 µg/kg (WHO GEMS/Food) to 10,000 µg/kg (Sultana et al. 2022), so a non-detect from a less sensitive method says much less.[1,9] Reporting limits for cadmium ranged from 0.4 µg/kg (WHO GEMS/Food) to 71.1 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1] Reporting limits for total arsenic ranged from 25

µg/kg (WHO GEMS/Food) to 504 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1]

A useful lot result names the form, the basis and a quantification limit well below the limit that applies.

9 | Buying and verifying coriander

No maximum level for metals in coriander was verified from primary text for this page; buyers should confirm the limit that applies in the destination market.

10 | Exposure from coriander

No source in the library converted coriander concentrations into a verified estimate of intake for a defined population. Concentrations describe the food, not individual risk.

11 | Evidence review and remaining gaps

Every source record that names coriander was decided on its content: 27 occurrence extracted, 27 records in all. The occurrence table renders every extracted result; held values remain visible with their reason.

References identify the sources used in these answers. The Sources index preserves additional discovery links; inclusion there does not mean a source has been reviewed for this assessment. Corrections, completed searches, new direct evidence and changes in requirements should reopen the relevant answer.

12 | Coriander FAQs

The library reports lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, antimony, Co, Cu, Fe, Mn, Zn, V, Se, Ba, Be, Sr and Tl in coriander, most often lead, cadmium and total arsenic.[1,2,3,4] WHO gems/food submissions reported lead in coriander as sold from 359 results in 5 reporting regions, with subgroup medians from 10 to 740 µg/kg.[1]

Among GEMS/Food reporting regions, coriander as sold had the lowest lead subgroup median in PAHO (19.3 µg/kg) and the highest in EURO (740 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in EURO (32 µg/kg) and the highest in PAHO (170 µg/kg).[1]

Inorganic arsenic, the more toxic form, was measured in 3 results from 2 sources, far fewer than total arsenic.[1,14] European Food Safety Authority (EFSA) 2014 reported inorganic arsenic at 26.9 µg/kg (mean) in coriander as sold from European dietary-survey occurrence data.[14]

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STATUS AND LICENCE

COMPETING INTERESTS

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DATA AVAILABILITY

Every source behind this ingredient profile is listed with its own source record at https://heavymetalindex.com/ingredients/coriander#sources.

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