Dried Herbs

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Abstract

Dried herbs in the HMI library has 208 reported results for lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, Co, Cu, Fe, Mn and Zn from 18 sources. WHO GEMS/Food submissions reported lead in dried herbs as sold from 1,043 results in 5 reporting regions, with subgroup medians from 60.8 to 9,990 µg/kg. For cadmium, GEMS/Food gave subgroup medians from 16 to 470 µg/kg from 140 results.

1 | Dried herbs overview

Across 2 other studies of ordinary farms and markets, reported lead means and medians on an as-sold or fresh-weight basis ranged from 174 µg/kg (Mustatea et al. 2021) to 555 µg/kg (Winiarska-Mieczan et al. 2023).[3,7] For cadmium, 2 studies on an as-sold or fresh-weight basis reported means and medians from 47 µg/kg (Winiarska-Mieczan et al. 2023) to 134 µg/kg (Winiarska-Mieczan et al. 2023).[7]

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

2 | What counts as dried herbs

This page covers dried herbs in 3 forms kept separate in every comparison: dried herbs as sold (168 results), dried herbs (38 results) and dried herbs powder or ground (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 dried herbs

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

4 | Which forms and regions measured lower

For lead, the HMI reference median was lowest for dried herbs as sold (200 µg/kg) and highest for dried herbs (3,860 µg/kg); forms differ in water content, so this compares foods as sold or eaten, not uptake.[1,8,7] The HMI reference for lead in dried herbs as sold pools 73 subgroup units from 2 sampling families, with a median of 2,600 µg/kg and a middle half spanning between 295 and 300 (lower quartile) and 2,600 µg/kg (upper quartile).[1,2] for lead in dried herbs as sold, the reference median was between 52.5 and 57.5 µg/kg, with a middle half from below 10 to 545 µg/kg across 17 units.[1,4] for lead in dried herbs, the reference median was 3,860 µg/kg, with a middle half from 555 to 16,300 µg/kg across 4 units.[8,7]

Dried among gems/food reporting regions herbs as sold had the lowest lead subgroup median in PAHO (60.8 µg/kg) and the highest in SEARO (9,990 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in WPRO (16 µg/kg) and the highest in EURO (470 µg/kg).[1] For total arsenic, the lowest regional median was in EURO (50 µg/kg) and the highest in EURO (276 µg/kg).[1]

Targeted dried herbs as sold samples in EURO had lead lower at 161 µg/kg, against 520 µg/kg for EURO in the same study.[1] In another study, targeted dried herbs as sold samples in EURO had cadmium lower at 200 µg/kg, against 240 µg/kg for EURO in the same study.[1]

In one study, lead across 16 groups of dried herbs ranged from 60.8 µg/kg (PAHO) to 4,250 µg/kg (SEARO); the lowest is the lowest observed in that study, not an established sourcing preference.[1] In another study, lead across 4 groups of dried herbs ranged from 40 µg/kg (OV2, packaged/purchased sample) to 110 µg/kg (TV3, wild-collected (spontaneous flora, Galati County)); the lowest is the lowest observed in that study, not an established sourcing preference.[9]

5 | Processing, cooking and preparation

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

6 | Mitigation for dried herbs

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 dried herbs for metals

Results depend on the method and its reporting limit. Reporting limits for lead ranged from 1 µg/kg (WHO GEMS/Food) to 4,000 µg/kg (WHO GEMS/Food), so a non-detect from a less sensitive method says much less.[1] Reporting limits for cadmium ranged from 0.4 µg/kg (WHO GEMS/Food) to 200 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 10 µg/kg (WHO GEMS/Food) to 1,020 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 dried herbs

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

10 | Exposure from dried herbs

No source in the library converted dried herbs 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 dried herbs was decided on its content: 18 occurrence extracted, 18 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 | Dried herbs FAQs

The library reports lead, cadmium, total arsenic, inorganic arsenic, dimethylarsinic acid, total mercury, nickel, chromium, aluminum, tin, Co, Cu, Fe, Mn and Zn in dried herbs, most often lead, cadmium and total arsenic.[1,2,3,4] WHO GEMS/Food submissions reported lead in dried herbs as sold from 1,043 results in 5 reporting regions, with subgroup medians from 60.8 to 9,990 µg/kg.[1]

For lead, the HMI reference median was lowest for dried herbs as sold (200 µg/kg) and highest for dried herbs (3,860 µg/kg); forms differ in water content, so this compares foods as sold or eaten, not uptake.[1,8,7]

Dried among gems/food reporting regions herbs as sold had the lowest lead subgroup median in PAHO (60.8 µg/kg) and the highest in SEARO (9,990 µg/kg); reporting regions are markets, not growing areas.[1] For cadmium, the lowest regional median was in WPRO (16 µg/kg) and the highest in EURO (470 µg/kg).[1]

Inorganic arsenic, the more toxic form, was measured in 7 results from 2 sources, far fewer than total arsenic.[1,10] European Food Safety Authority (EFSA) 2014 reported inorganic arsenic at 43.1 µg/kg (mean) in dried herbs as sold from European dietary-survey occurrence data.[10]

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STATUS AND LICENCE

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COMPETING INTERESTS

The Heavy Metal Index reports what the peer-reviewed and regulatory literature supports. It is operated separately from any certification program, does not evaluate or endorse brands, and does not use certification thresholds as evidence for the statements made here.

DATA AVAILABILITY

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

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