

Cannabis and hemp supplement enthusiasts, as well as healthcare professionals, often seek transparency and safety assurances before trusting any product. One of the primary ways this trust is built is through the Certificate of Analysis (COA). But when reviewing COAs, a common question arises: **does a COA need to show Salmonella and E. coli results?**

As a medication reconciliation lead with over a decade of experience reviewing patient-brought supplements, I understand the importance of COAs in confirming product safety, potency, and quality. In this post, I'll walk you through COA essentials, microbial panel details including Salmonella and E. coli testing, and practical tips on batch matching and potency interpretation. Along the way, we'll reference reputable companies like Joy Organics, USDA Organic standards, and NSF certifications while also highlighting technological tools such as QR code batch lookups.

What is a COA and Why Does It Matter?

A **Certificate of Analysis (COA)** is a laboratory report provided by third-party labs that test hemp, cannabis, or supplement products for potency, contaminants, and microbial safety. The COA ensures transparency between manufacturers, dispensaries, and consumers, verifying what's actually inside the bottle matches labeling claims.

Basic Components of a COA

- **Potency Panel:** Lists cannabinoids like CBD, THC, CBG, including their individual and total amounts.
- **Microbial Panel:** Tests for harmful bacteria, including Salmonella and E. coli.
- **Heavy Metals:** Screening for lead, arsenic, cadmium, and mercury.
- **Pesticides Residues:** Identifying unsafe pesticide levels.
- **Batch Number and Date:** Matching the COA to the product you hold.
- **Laboratory Information:** Lab name, location, and sometimes accreditation.

When reviewing COAs, look for completeness and clarity. Red flags include missing batch numbers, pass/fail microbial results with no numeric data, or unspecified testing methods. I always **ask to see the actual supplement bottle** before discussing the COA to make sure batch numbers printed on the carton match exactly.

Does a COA Need to Show Salmonella and E. coli Results?

Salmonella and Escherichia coli (E. coli) are harmful bacteria that can cause serious infections if ingested, especially in vulnerable populations. For ingestible products like tinctures, capsules, and gummies, microbial safety is paramount.



Hence, **a comprehensive microbial panel on COAs should always include Salmonella and E. coli testing.** Here's why:

1. **Regulatory Standards:** The USDA Organic certification and other regulatory bodies require microbial testing to ensure product safety. This includes mandatory screening for Salmonella and E. coli. Companies like **Joy Organics** follow stringent microbial testing protocols and publish detailed COAs with these results.
2. **Consumer Safety:** Products without Salmonella or E. coli testing risk contamination that could lead to foodborne illnesses. Consumers deserve confidence that the product is free from these pathogens.
3. **Quality Confirmation:** Microbial tests verify good manufacturing practices. The presence of these pathogens indicates poor hygiene or contamination during production.

What Does the Microbial Panel Look Like?

Test Result Units Pass/Fail Salmonella Not Detected N/A Pass Escherichia coli Not Detected N/A Pass Total Aerobic Microbial Count (TAMC) 100 CFU/g Colony Forming Units / gram Pass Total Yeast and Mold Count (TYMC) 50 CFU/g Colony Forming Units / gram Pass

Note how the report not only states "Pass" or "Fail," but also provides quantitative results (e.g., CFU/g). When numbers are missing and it's only "Pass/Fail," I consider it a red flag requiring follow-up.

Batch and Date Matching: How to Verify Authenticity

One of my core rules when reviewing COAs is to ensure the batch number and manufacturing date on the bottle or carton exactly **match the COA**. This is critical because a COA only applies to the tested batch. Using COAs from different batches doesn't guarantee safety or potency.

Many companies now include **QR code batch lookup** on cartons or bottles, allowing customers and healthcare providers to scan and instantly verify:

- Batch number and manufacturing date
- Link/access to the full COA report
- Additional product details or certifications

For example, **Joy Organics** prominently features batch numbers printed on cartons and provides QR codes that lead directly to third-party lab results. This practice enhances transparency and simplifies verification.

Potency Units and Serving Size / Dosage Explained

COA potency results often list cannabinoid concentrations as milligrams per gram (mg/g) or percentages (%), which can confuse patients without practical clarity.

You know what's funny? here's how i break it down during medication reconciliation:

- **Doses in mg per serving first:** For example, a tincture might contain 20 mg CBD per 1 mL serving.
- **Note how the patient actually takes it:** Some patients take half a dropper or measure irregular amounts. Confirming real usage helps accurate medication reconciliation.

Understanding the potency ensures patients get safe, effective doses — especially when acid vs neutral cannabinoids are involved.

Acidic vs Neutral Cannabinoids and Total Calculations

Cannabinoids in plants mostly exist in their acidic forms — e.g., CBDA vs CBD or THCA vs THC. Acidic cannabinoids convert to neutral forms with heat (decarboxylation). Some COAs list both forms, which complicates calculating total cannabinoid content.

The cannabinoid potency panel may look like this:

Cannabinoid	Acid Form (mg/g)	Neutral Form (mg/g)	Total (mg/g)
CBD / CBDA	10.0	5.0	12.1*
THC / THCA	0.2	0.1	0.24*

**Total calculated accounting for molecular weight difference between acid and neutral forms.*

I always write doses in neutral mg (e.g., 12.1 mg total CBD). This clarity simplifies dosage conversations for patients and providers.

Reliable Certifications: USDA Organic and NSF

When reviewing a product's COA, I also verify whether the company holds trustworthy certifications like:

- **USDA Organic:** Ensures hemp is grown without synthetic pesticides, herbicides, or fertilizers.
- **NSF International:** Provides independent testing and certification ensuring product safety and labeling accuracy.

Products from companies like **Joy Organics** typically highlight these certifications on packaging, adding a level of confidence.

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Summary and Best Practices

Bottom line: yes, a COA absolutely needs to show Salmonella and E. coli results as part of a comprehensive microbial panel, especially for ingestible hemp or cannabis supplements.

Here's a checklist to keep in mind when reviewing a COA:

1. Ensure the microbial panel includes both Salmonella and E. coli testing — and that the results are quantitative or clearly "Not Detected."
2. Confirm the batch number on the COA exactly matches the product's batch number, printed on the carton or bottle.
3. Use QR code batch lookups when available to access the official COA online.
4. Read potency results carefully, converting acid cannabinoid content to neutral forms for total dose clarity.
5. Look for recognized certifications like USDA Organic or NSF on the packaging and COA.
6. Avoid accepting COAs with pass/fail microbial panels that lack numeric data or batch numbers.

Remember, reviewing supplements thoroughly—including their COAs—is crucial to patient safety. By demanding transparency and detailed testing like Salmonella and E. coli microbial panels, healthcare professionals and patients can make better, safer decisions.

For trusted brands, keep an eye on industry leaders like **Joy Organics**, which exemplify transparency via QR codes, clear batch markings, and full third-party lab testing.

Need a quick refresher? Always *ask to see the actual bottle* first, confirm batch numbers, double-check salmonella and e. coli test results, and make sure serving size potency aligns with patient use. This simple mental checklist will guard against unsafe supplements and documentation gaps.

Remember: COAs aren't just paperwork — they're your safety net.