how do you get the most flavanoids out of dried cacao

To maximize flavonoid (especially flavanols like epicatechin and procyanidins) retention from dried cacao beans or nibs, you need to minimize the processes that destroy or remove them. Flavonoids are heat-sensitive, oxygen-sensitive, and water-soluble, and they're also reduced by alkalization ("Dutching"). Here are the most effective evidence-based ways, ranked by importance:

1. **Avoid alkalized/Dutch-processed cocoa entirely**
   Alkalization (even "lightly Dutch-processed") can destroy 60–90% of flavanols. Always buy **non-alkalized**, **natural-process** cocoa powder or cacao powder. Look for labels that explicitly say "non-Dutched" or "natural cocoa."
2. **Choose the least-heat-processed product possible**
   Heat is the biggest flavanol killer after alkalization.
   - Raw cacao powder/nibs (dried at <40–45 °C) → highest flavanol content (often 30–50 mg/g epicatechin + procyanidins)
   - Lightly roasted cacao nibs (short roast at ≤115–120 °C) → still very good (20–35 mg/g)

- Standard roasted cacao nibs (130–150 °C for 20–40 min) → 50–80% loss
- Most commercial cocoa powders (high-temperature conching/roasting) → often <10 mg/g

Best commercial sources known for high flavanol retention (2023–2025 data):

- CocoaVia (concentrated extract, ~500 mg flavanols per serving)
- Navitas Organics raw cacao powder
- Wildly Organic / Wilderness Family Naturals fermented-but-unroasted cacao powder
- TerraSoul raw cacao
- Some single-estate “fine flavor” beans (e.g., Ecuador Arriba, Dominican Hispaniola) that are low-roast or raw

3. **Ferment, but don’t over-ferment**
   Proper fermentation (4–7 days) actually increases total flavanols in many cases by breaking down bitter anthocyanins and concentrating the remaining polyphenols. Over-fermentation or heap overheating drops them again.

4. **Processing method for maximum extraction at home**
   If you're starting from nibs or whole beans:
   - Use raw or very lightly roasted nibs
   - Grind into powder just before use (oxidation starts immediately once cells are broken)
   - Extract with 50–70 °C water (not boiling) for 10–15 min → boiling water (100 °C) can reduce flavanols another 20–30%
   - Add a pinch of ascorbic acid (vitamin C) or use slightly acidic water (lemon juice) → acts as antioxidant and preserves flavanols
   - Avoid adding milk right away — milk proteins bind flavanols and reduce bioavailability (add after cooling a bit if you must)
5. **Best consumption method for highest flavanol delivery**
   - Hot chocolate made with 70 °C water + non-Dutched powder + a little sugar (sugar doesn't reduce flavanols)
   - Straight cacao nibs chewed slowly (salivary enzymes help)
   - High-flavanol cocoa supplements (CocoaVia, etc.) if you want guaranteed 400–750 mg doses

Realistic maximum you can get at home
Using top-tier raw, non-alkalized, non-Dutched cacao powder (≈40–50 mg total flavanols/g):
10 g (2 heaped teaspoons) → 400–500 mg flavanols
20 g (a generous mug) → 800–1000 mg flavanols
(comparable to or higher than most clinical trial doses)

Quick cheat-sheet of approximate flavanol content (mg/g):

- Raw non-Dutched cacao powder: 30–55 mg/g
- Lightly roasted non-Dutched: 20–35 mg/g
- Standard cocoa powder (non-Dutched): 10–20 mg/g
- Dutch-processed (even lightly): 3–10 mg/g
- Dark chocolate 70–85% (non-Dutched beans): 5–15 mg/g (much lower because of conching and added fat)

Bottom line: Buy raw or very lightly roasted, non-alkalized cacao powder from a reputable high-flavanol source, brew with hot (not boiling) water, and consume soon after grinding. That's currently the highest-flavanol way without going to concentrated extracts.

↳ Health benefits of flavanols

↳ Cacao fermentation process