



DOSSIER · SUBSTANCE

Dragon's Blood (Sangre De Grado)

Dragon's blood is the red latex of *Croton lechleri*; human studies mainly test the purified extract crofelemer for diarrhea.

175

STUDIES IN
TOTAL

42

IN HUMANS

7

OF WHICH
CONTROLLED

20

IN ANIMALS

36

IN THE LAB

Figures from the IHR study database · Last updated 2026-10-15

How to Read This Dossier

ESTABLISHED

measured in humans, with a comparison group

PLAUSIBLE

supported by mechanism, animal studies or observation

HYPOTHESIS

a likely connection that still needs to be tested

Dragon's Blood (Sangre De Grado) at a Glance

In HIV-positive people with chronic noninfectious diarrhea, crofelemer worked better than placebo in a randomized controlled trial: more response, fewer watery stools, firmer stool ³.

Two further randomized controlled trials missed their primary endpoint; secondary analyses showed benefits for abdominal pain in irritable bowel syndrome ¹ and for moderate to severe chemotherapy-induced diarrhea ².

We evaluated 21 human studies on Dragon's blood (sangre de grado), including 3 randomised controlled trials and 0 meta-analyses or systematic reviews; the controlled studies include 240 participants in total. As of 3 October 2026.

1. What Is Dragon's Blood (Sangre De Grado)? Occurrence, Origin and Forms

Dragon's blood, Spanish sangre de grado, is the red latex of the South American tree Croton lechleri of the spurge family. It contains mainly proanthocyanidins and the alkaloid taspine; the drug crofelemer is also obtained from it.

The tree grows in the western Amazon region, for example in Peru and Ecuador. The latex flows when the bark is cut and is traditionally applied to wounds and taken for diarrhoea.

Products include the liquid latex for topical or oral use, as well as creams and dental care products. Crofelemer is a purified extract of the latex approved as a medicine for diarrhoea.

Forms and Preparations Studied

- Liquid latex (sangre de grado) applied to the skin
- Latex taken by mouth
- Crofelemer, the purified extract of the latex
- Creams and dental products with dragon's blood

Not covered on this page:

- Dragon's blood resins from other plants (Dracaena, Daemonorops, Pterocarpus)

2. What Does Dragon's Blood (Sangre De Grado) Do? Results by Area

AREA	RESULT IN CONTROLLED STUDIES	STRENGTH OF EVIDENCE	STUDIES	PARTICIPANTS
Diarrhoea and digestion	mostly improved	moderate	0 meta-analyses · 4 controlled · 13 other	240
Skin and wounds	mostly improved	low	0 meta-analyses · 1 controlled · 2 other	0
Other outcomes	mostly no difference	unclear	0 meta-analyses · 1 controlled · 2 other	0

How to read the table: counted are human studies whose results concern the area. "High" means at least one meta-analysis and two controlled studies showing improvement, or at least three controlled studies of which three quarters show improvement, with at least 300 participants in total. "Moderate" means at least two controlled studies showing improvement, as a majority, or one meta-analysis alongside controlled studies. "Low" means one controlled study showing improvement. Where an area has no controlled study, the strength of evidence is at most "low" (result "reviews only" or "observational data only"). Everything else is "unclear". A study counts as showing improvement when at least half of its outcomes in this area improved. Reviews of combination products do not count as meta-analyses; results that only describe side effects or shares of users do not count as an effect. The same study is counted only once.

3. What the Studies Show in Detail

Dragon's Blood (Sangre De Grado), Diarrhoea and Digestion: Human Studies

For diarrhea and digestion, mainly crofelemer was studied, the purified extract from the latex of Croton lechleri. The finding was clearest in HIV-positive people with chronic noninfectious diarrhea ³. There, in a randomized controlled trial, more patients responded on crofelemer than on placebo, with fewer watery stools and firmer stool ³. In diarrhea during chemotherapy for breast cancer, an open-label randomized trial missed its primary endpoint ². However, at least moderate diarrhea occurred less often there and resolved more frequently than in the control group ². In women with diarrhea-predominant irritable bowel syndrome, a randomized controlled trial missed its primary endpoint, pain-free days ¹. In a post-hoc analysis, however, abdominal pain responded more frequently than with placebo, stool consistency did not ¹. A small controlled, non-randomized trial suggests an effect of crofelemer in diarrhea during neratinib ⁴. For the raw sap for ingestion, only one review is available, which reports positive clinical findings in travelers' diarrhea and watery diarrhea ¹⁹.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON
¹ Nee et al. 2019	randomised controlled · 240 participants	Crofelemer, purified extract from Croton lechleri latex; 125 mg twice daily; 12 weeks; vs. Placebo
² Pohlmann et al. 2022	randomised controlled	crofelemer 125 mg orally; 125 mg twice daily; chemotherapy cycles 1 and 2; vs. no scheduled prophylactic medication
³ Macarthur et al. 2013	randomised controlled	Crofelemer (purified dragon's blood extract); 125 mg, 250 mg or 500 mg twice daily; stage II: 125 mg twice daily; 4 weeks
⁴ Jacob et al. 2023	controlled	Crofelemer; 125 mg twice daily; first 2 cycles prophylactic, then as needed; vs. Dose-escalated neratinib with loperan
⁶ Greene et al. 2021	case report	crofelemer (off-label); vs. no comparator (case report)
⁷ QUART et al. 2008	study	Polymeric proanthocyanidin composition from Croton or Calophyllum species, e.g. crofelemer
⁸ Frampton et al. 2013	review · 376 participants	Crofelemer (Fulyzaq), oligomeric proanthocyanidin from Croton lechleri latex; 125 mg twice daily orally; 4 weeks placebo-controlled
⁹ Amin et al. 2026	review	Crofelemer, oral plant-derived botanical drug

Further studies in this area: [11](#) [12](#) [13](#) [14](#) [15](#) [16](#) [17](#) [18](#) [19](#)

Dragon's Blood (Sangre De Grado), Skin and Wounds: Human Studies

A review on dermatology mentions clinical studies that point to wound-healing and antiviral properties of dragon's blood ¹⁰. Another review mentions relief of itching, pain and swelling from insect bites by the sap ¹⁹. A controlled, non-randomized trial tested a cream with pomegranate seed oil and resin extract of Croton lechleri for stretch marks ⁵. Dermis thickness, skin moisture and elasticity increased in both groups ⁵. The share of dragon's blood cannot be determined from this. It remains open whether the pure latex or crofelemer actually improve skin and wound healing in humans.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON	RESULT
⁵ Bogdan et al. 2017	controlled	O/W cream with pomegranate seed oil and C. lechleri resin extract; 6 weeks; vs. two groups, nonrandomized	dermis thickness: improved
¹⁰ Pona et al. 2019	review	Dragon's Blood from Croton lechleri	Wound healing: improved
¹⁹ Jones et al. 2003	review	Sangre de Grado (sap of Croton lechleri)	symptoms of insect bite

Dragon's Blood (Sangre De Grado): Further Outcomes in Studies

In HIV-positive patients with chronic diarrhea, crofelemer did not impair clinical immune parameters in a randomized controlled trial ³. A review reports that HIV viral load and CD4 cell count remained unchanged ⁸. Only crofelemer was studied, the purified extract from the latex of Croton lechleri, not the raw sap; controlled data on immune parameters and safety markers of the raw latex are lacking.

STUDY	DESIGN · PARTICIPANTS	PREPARATION · DOSE · DURATION · COMPARISON
³ Macarthur et al. 2013	randomised controlled	Crofelemer (purified dragon's blood extract); 125 mg, 250 mg or 500 mg twice daily; stage II: 125 mg twice daily; 4 weeks placebo-controlled
⁸ Frampton et al. 2013	review · 376 participants	Crofelemer (Fulyzaq), oligomeric proanthocyanidin from Croton lechleri latex; 125 mg twice daily orally; 4 weeks placebo-controlled, 1
¹⁷ 2012	review	Crofelemer

4. How Is Dragon's Blood (Sangre De Grado) Dosed? Preparation, Dose and Duration in Studies

The controlled trials used almost exclusively crofelemer, the purified extract from the latex of *Croton lechleri*, orally for diarrhea ¹²³⁴. For the liquid sap for application, the sap for ingestion, and for creams and dental care products with dragon's blood, only reviews or one non-randomized trial of a combination product are available in human studies ⁵¹⁰¹⁹.

PREPARATION OR FORM	DOSE	DURATION	STUDY
Crofelemer, purified extract from <i>Croton lechleri</i> latex	125 mg twice daily	12 weeks	¹
crofelemer 125 mg orally	125 mg twice daily	chemotherapy cycles 1 and 2	²
Crofelemer (purified dragon's blood extract)	125 mg, 250 mg or 500 mg twice daily; stage II: 125 mg twice daily	4 weeks placebo-controlled, then 20-week open-label extension	³
Crofelemer	125 mg twice daily	first 2 cycles prophylactic, then as needed	⁴
O/W cream with pomegranate seed oil and <i>C. lechleri</i> resin extract	—	6 weeks	⁵

5. Is Dragon's Blood (Sangre De Grado) Safe? Side Effects in Studies

Crofelemer was well tolerated in the trials, with a safety profile similar to placebo ¹³⁸¹⁸. It is hardly absorbed from the intestine ³⁸¹³¹⁴¹⁵. In a small controlled, non-randomized trial, most treated participants developed constipation, consistently mild ⁴. Reviews mention occasional serum enzyme elevations without clinically manifest acute liver injury as well as mild gastrointestinal effects ¹⁶¹⁷. Crofelemer was also well tolerated in an open-label safety study lasting nearly one year ⁸.

STUDY	REPORTED SIDE EFFECTS
¹ Nee et al. 2019	Safety profile similar to placebo
³ Macarthur et al. 2013	Minimally absorbed, well tolerated, safety profile comparable to placebo
⁴ Jacob et al. 2023	82% constipation, all grade 1
⁸ Frampton et al. 2013	Infections and GI disorders most frequent; overall incidence similar to placebo
⁹ Amin et al. 2026	Safety and tolerability discussed, no numbers given
¹³ Patel et al. 2013	minimal adverse events, well tolerated, not systemically absorbed
¹⁴ Yeo et al. 2013	not absorbed, well tolerated in small trials; long-term safety lacking
¹⁵ Chordia et al. 2013	well tolerated, minimal systemic absorption, good safety profile
¹⁶ Cottreau et al. 2012	minimal toxicity beyond mild gastrointestinal effects
¹⁷ 2012	occasional serum enzyme elevations; no clinically apparent acute liver injury
¹⁸ Crutchley et al. 2010	Oral crofelemer well tolerated, adverse effect profile comparable to placebo
¹⁹ Jones et al. 2003	low toxicity, well tolerated in clinical studies

6. What Remains Open: Limits of the Evidence

- Most controlled trials tested crofelemer, not the raw latex; their results cannot be transferred to the sap for application or ingestion.
- For skin and wounds, randomized controlled trials are lacking; the available trial involved a combination product without randomization.
- Controlled data on immune parameters and safety markers of the raw latex are lacking.
- The study populations are narrowly defined (irritable bowel syndrome, HIV-associated diarrhea, cancer therapy-associated diarrhea), which limits transferability.
- Information on manufacturer funding of the trials is lacking, which complicates the assessment of the results.

7. Bottom Line: What Is Established About Dragon's Blood (Sangre De Grado)

Dragon's blood, the red latex of *Croton lechleri*, is studied in human trials almost exclusively in the form of the purified extract crofelemer for diarrhea. The benefit over placebo is clearest in HIV-associated diarrhea ³. In irritable bowel syndrome and chemotherapy-induced diarrhea, randomized trials missed their primary endpoint but showed benefits in secondary analyses ¹². Tolerability was good in the trials, with a profile similar to placebo ¹³⁸¹⁸.

Frequently Asked Questions

How well has Dragon's blood (sangre de grado) been studied in humans?

We evaluated 21 human studies on Dragon's blood (sangre de grado), including 3 randomised controlled trials and 0 meta-analyses or systematic reviews; the controlled studies include 240 participants in total. As of 3 October 2026.

Does Dragon's blood (sangre de grado) help with diarrhoea and digestion? What the studies show

We evaluated 4 controlled studies and 13 further studies; the controlled studies include 240 participants in total. Result of the controlled studies: mostly improved. Strength of evidence under our published rules: moderate. Sources: ¹²³⁴

Does Dragon's blood (sangre de grado) help with skin and wounds? What the studies show

We evaluated one controlled study and 2 further studies. Result of the controlled studies: mostly improved. Strength of evidence under our published rules: low. Sources: ⁵¹⁰¹⁹

What is dragon's blood studied for in human trials?

The focus is on diarrhea and digestion, where mainly the purified extract crofelemer was tested ¹²³⁴. The benefit over placebo was clearest in HIV-associated diarrhea ³. For the skin, reviews mention clinical evidence of wound healing and antiviral properties ¹⁰ as well as relief from insect bites ¹⁹. Randomized trials on skin and wounds are still pending.

Are there also results without a difference?

Yes. In women with diarrhea-predominant irritable bowel syndrome, pain-free days and stool consistency did not differ from placebo in a randomized controlled trial ¹. In diarrhea during chemotherapy, an open-label randomized trial missed its primary endpoint, diarrhea of any severity ². In HIV-positive patients, crofelemer did not impair clinical immune parameters in a randomized controlled trial ³.

How well is dragon's blood tolerated?

Crofelemer was well tolerated in the trials, with a safety profile similar to placebo ¹³⁸¹⁸. It is hardly absorbed from the intestine ³⁸¹³¹⁴¹⁵. Reviews mention occasional serum enzyme elevations without clinically manifest acute liver injury ¹⁷.

Do the results also apply to the raw latex?

No. All controlled trials on diarrhea tested crofelemer, the purified extract from the latex ¹²³⁴. For the liquid sap for application, the sap for ingestion, and for creams and dental care products with dragon's blood, controlled data are lacking.

Sources

1

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International Health Research

Research, put in context. Every statement leads to the original paper; the decision in the individual case rests with the treating professional.
ih-research.com/en/knowledge/dragon-s-blood/ · Last updated 2026-10-15