Table 1: Systematic reviews of curcumin for radiation dermatitis

Source: Mora DC, CAM-Cancer Collaboration. Curcumin for radiation dermatitis [online document]. Curcumin | Radiation dermatitis, October 2026.

Review characteristics	PICO of included studies	Results and conclusions	Assessment
Gutsche, L. C., Drefer, J., & Hüber, J. (2025). *Curcumin as a complementary treatment in oncological therapy: A systematic review*. European Journal of Clinical Pharmacology, 81, 1-33. https://doi.org/10.1007/s00228-024-03764-9			
Type of review Systematic review with narrative synthesis. **Studies: n and design** 34 RCTs **Search strategy** *Databases* MEDLINE (Ovid), Embase (Ovid), Cochrane CENTRAL, PsycINFO (EBSCO), CINAHL (EBSCO) *Dates* From 1995 to January 2024 *Risk of bias assessment* Cochrane Risk of Bias tool RoB 2.0	**Participants** 2,580 participants (2,449 analyzed). Adults diagnosed with any type and stage receiving cancer treatment **Interventions** Oral curcumin supplementation (20 + RCTS), Curcumin mouthwash /rinse (8 RCTs), topical curcumin oral gel (3 RCTs), topical curcumin gel (3 RCTs), Intravenous curcumin (1 RCT) **Control** UC, Chlorhexidine, benzydamine, povidone-iodine, HPR Plus™ cream, aloe vera, Riboflavin placebo + paclitaxel **Outcome measures:** *Oral mucositis (13 RCTs):* WHO Oral Mucositis Scale, WHO Oral Toxicity Scale, OMAS, NCI-CTCAE, NCI-CTC v2, RTOG criteria. *Pain (11 RCTs):* Numerical Rating Scale (NRS), Visual Analogue Scale (VAS), McGill Pain Questionnaire-Short Form (MPQ-SF). *Radiation dermatitis (4 RCTs)*: Radiation Dermatitis Severity Scale (RDS), RTOG Skin Toxicity Criteria, NIH CTCAE *Quality of life (9 RCTs)*: EORTC QLQ-C30, EORTC QLQ-PR25, UW-QOL, FACT-P, Skindex-29. *Functional status (5 RCTs):* ECOG Performance Status, Karnofsky Performance Status	**Results for risk of bias assessment of primary studies included in the review** Overall, the risk of bias was rated as high for 22 studies; twelve studies were rated as moderate risk of bias, and no studies were rated as low or unclear risk of bias. Most studies had issues with blinding, randomization, and unreliable concealment methods. **GRADE:** No GRADE assessment was conducted. **Results for outcome measures** *Radiation dermatitis (skin toxicity):* One out of four RCTs showed lower radiation dermatitis severity with curcumin SD -0.8 (-1.4, -0.2) p=0.008. *Pain associated with skin toxicity*: One out of four RCTs reported lower various pain scores with nanocurcumin during radiotherapy p=0.002 to 0.045. *Oral mucositis:* Twelve of the 13 RCTs showed significantly lower mucositis severity with curcumin versus placebo, chlorhexidine, benzydamine, or povidone-iodine. p<0.001 to p=0.003 across studies (Talakesh 2022). *Pain associated with oral mucositis:* Six out 7 RCTs showed significant reduction in oral pain with curcumin compared with placebo or active controls p<0.001 to p=0.02. *Weight loss*: Less weight loss reported in 3 RCTs with nanocurcumin or turmeric rinse. The remaining 2 RCTs did not show significant associations.	**Quality assessment of the SR** Moderate according to the AMSTAR 2 checklist. Methods only partially described as this SR was part of guideline development and the authors did not provide a protocol registration. **Comments** Although the SR is of moderate quality, there is substantial heterogeneity in design, populations and outcome measures and pool effect estimates could not be calculated. The included studies had small sample sizes, and moderate/high risk of bias in the included studies. The review did not assess certainty of evidence using GRADE

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

	Survival (4 RCTs): Overall Survival (OS), Progression-Free Survival (PFS), Time to Tumor Progression (TTP) *Prostate cancer progression (3 RCTs):* PSA levels, PSA progression rates *Tumor response (7 RCTs):* RECIST criteria, WHO Response Criteria, Pathologic Complete Response (pCR) *Body composition (2 RCTs):* Bioelectrical Impedance Analysis (BIA), body fat mass, skeletal muscle mass, BMI *Adverse events (13 RCTs)*: CTCAE, NCI-CTCAE, laboratory toxicity measures **Measure of treatment effect** Mean differences, risk ratios, proportions, hazard ratios (HRs), between-group mean differences, incidence rates**,** mean score differences, odds ratios, response rates, risk estimates	*Body composition:* improved muscle mass compared with placebo in one RCT, the other RCT did not show significant associations. *Overall survival (OS):* Prolonged OS reported in one out of four RCTs. Improved OS in colorectal cancer with ITT analysis HR = 0.339 (0.141, 0.815) p = 0.016; with per-protocol analysis HR = 0.271 (0.106, 0.697) p = 0.004. (Howells 2019). The remaining 3 RCTs did not show significant associations. *Progression-free survival:* No significant results reported in the four included RCTs. *PSA progression*: One out of four RCTs reported lower PSA progression rate in prostate cancer of 10.3% vs 30.2%, p=0.0259 (Choi 2019). *Tumor response:* Two out of seven RCTs reported a higher response or remission rate. objective response rate higher with curcumin + paclitaxel. ORR 50.7% vs 33.3% p = 0.0145 (Saghatelyan 2020). Higher remission rate in multiple myeloma. OR 75% vs 33.3% p = 0.01 (Santosa 2022). The remaining 5 RCTs did not show significant associations *Quality of Life (QoL):* Two out of nine RCTs reported greater QoL improvement with curcumin (Panahi 2014) and improvement in functional and global QoL scores (Panahi 2021a). The remaining 7 RCTs did not show significant associations. **Subgroup analysis** Overall, subgroup analyses suggested that the benefits of curcumin were most consistently observed among patients undergoing chemotherapy and/or radiotherapy for head and neck cancers, particularly for reducing oral mucositis, oral pain, and treatment-related weight loss. Some studies also suggested differential effects according to cancer type, treatment	

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

		modality, baseline disease characteristics, or curcumin dose, but these findings were often based on small sample sizes and should be interpreted cautiously **Adverse events** The authors do not provide the number of RCTs assessing side effects of curcumin but only one study reported significantly more vomiting in the intervention group. Other adverse events reported in two other RCTs were minor (i.e., gastrointestinal symptoms such as nausea, diarrhea, abdominal discomfort, and vomiting). **Conclusion** "*Although studies showed some beneficial effects of curcumin administration on cancer therapy-related side effects, especially oral symptoms and weight loss, there were clear methodological weaknesses decreasing the reliability of these results*."	
Limbrunner, J., Doerfer, J., Pietschmann, K., Buente, J., Scharpenberg, M., & Huebner, J. (2025). *The influence of antioxidant supplementation on adverse effects and tumor interaction during radiotherapy: A systematic review*. Clinical and Experimental Medicine, 25, 258. https://doi.org/10.1007/s10238-025-01804-x			
Type of review Systematic review with narrative synthesis **Studies: n and design** 39 RCTs, thereof 17 RCTs of curcumin/turmeric preparations. ***Search strategy:*** ***Databases*** MEDLINE (Ovid), EMBASE (Ovid), CINAHL (EBSCO), Cochrane CENTRAL, and PsycINFO (EBSCO) ***Dates*** Search conducted in 2024 but no start date mentioned. **Risk of bias assessment** Cochrane Risk of Bias tool RoB 2	**Participants** 3,184 participants Adults (≥16 years) with any type of cancer at any stage receiving radiotherapy. **Interventions** Curcumin/Turmeric preparations 15 RCTs, Vitamin-based interventions 11 RCTs. Flavonoids 8 RCTs. Glutathione 3 RCTs. Multiple antioxidant combinations 2 RCTs. **Control** UC, placebo control, active control (Chlorhexidine mouthwash, benzydamine mouthwash, povidone-iodine, anesthetic/antimicrobial solution) **Outcome measures (primary outcomes)** *Oral mucositis (14 RCTs): Curcumin/tumeric (12 RCTs), Vitamin C/E (2 RCTs)*: WHO Oral Mucositis Scale, CTCAE, Oral Mucositis Assessment Scale (OMAS), Oral Health	**Results for risk of bias assessment of primary studies included in the review** Overall, the risk of bias was rated as high for 23; ten studies were rated as some concerns, and six were rated as low risk of bias. Reasons for higher risk ratings included lack of blinding, absence of intention-to-treat analyses, incomplete outcome data, small sample sizes, and selective reporting of outcomes. **GRADE** No GRADE assessment was conducted. **Results for outcome measures** ***Primary outcomes*** ***Radiation-induced dermatitis*** Curcumin (3 RCTs) reduced dermatitis severity in two RCTs. Mean difference = −0.8, 95% CI (−1.4, −0.2), p = 0.008 (Ryan et al.). The second study reported a p-value of the comparison for grade 3 and grade 3 dermatitis after 6-weeks (p= 0.037)	**Quality assessment of the SR** Moderate quality according to AMSTAR 2 checklist. No assessment of publication bias was reported. The results of the reviews relied on narrative synthesis. **Comments** Considerable clinical heterogeneity. The included studies varied widely in cancer types, stages, radiotherapy regimens, antioxidant agents, dosages, routes of administration, and outcomes measured. The included studies had small sample sizes.

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

	Assessment Tool (OHAT), Numerical Rating Scale (NRS), PROMS. *Dermatitis/Radiodermatitis (8 RCTs: Vitamins C/E (2), Curcumin (3), Flavonoids (2), Glutathione (1)):* RTOG criteria, CTCAE, Radiation Dermatitis Severity Score, Skin Toxicity Assessment Tool, thermography, cutometer, mexameter. *Proctitis/Cystitis* (1 RCT: curcumin): CTCAE (Common Terminology Criteria for Adverse Events **Measure of treatment effect** Odds Ratio, hazard Ratio Risk/percentage, mean differences, p-values, confidence interval.	EGCG (2 RCTs) lowered incidence of grade ≥2 dermatitis. Significant benefit reported; p = 0.008. ***Proctitis/Cystitis:*** Curcumin (1 RCT) showed no significant benefit in the one included RCT. ***Oral mucositis*** *Vitamin C* (2 RCTs) supplementation reduced mucositis severity in a dose-dependent manner. Significant benefit reported p < 0.001. *Vitamin E (2 RCTs)* mouth rinse reduced occurrence of oral mucositis. Significant benefit reported; p = 0.038. *Curcumin (12 RCTs)* improved oral mucositis in eleven of twelve RCTs. Significant benefit reported; p-values ranged from <0.001 to 0.027. **Secondary outcomes** ***Tumor-Related outcomes*** Studies evaluating curcumin (3 RCTs) showed no significant effect on tumor related outcomes. Head and neck cancer recurrence: Higher plasma β-carotene associated with lower recurrence risk.HR = 0.54, (0.32, 0.91), p < 0.05. Second primary cancer (smokers receiving antioxidants during RT): Increased risk observed. HR = 2.41 (1.25, 4.64), p = 0.03. Death from first cancer (smokers receiving antioxidants during RT): Increased mortality observed.HR = 3.38, 95% CI (1.11, 10.34), p = 0.04. Overall survival, disease-free survival, progression-free survival (several studies): No significant differences. ***Quality of life (3 RCTs)*** Urinary symptoms (curcumin, prostate cancer. 1 RCT): reduced symptoms. Significant benefit reported; p = 0.011. Cardiac toxicity (LVEF decline): Vitamins C + E + NAC reduced decline in LVEF. Significant benefit reported; p = 0.008 (RTX only), p = 0.03 (CRTX); effect size not reported. The remaining two RCTs showed no significant effect on QoL outcomes from curcumin. ***Weight Loss (4 RCTs)***	

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

		Weight loss during radiotherapy: Curcumin reduced weight loss in all four studies. Significant benefit reported; p-values from 0.003 to <0.001. **Adverse events** For the majority of the interventions, including curcumin, the studies assessed did not evaluate the adverse events. For those evaluated events were mild. ***Conclusions*** "In conclusion, we are not able to give a concrete recommendation for the use of antioxidants during radiotherapy. This is due to the very heterogeneous results of the studies, which predominantly had small numbers of included patients and generally a medium to high risk of bias."	
Vasconcelos, S. C. C. M. e., Guerra, E. N. S., de Menêses, A. G., dos Reis, P. E. D., & Ferreira, E. B. (2023). *Effects of oral supplementation to manage radiation dermatitis in cancer patients: A systematic review*. Supportive Care in Cancer, 31, 240. https://doi.org/10.1007/s00520-023-07685-8			
Type of review: Systematic review with meta-analysis of randomized controlled trials (RCTs). **Studies: n and design** 17 RCTs **Search strategy** ***Databases*** CINAHL, Cochrane Library, EMBASE, LILACS, PubMed, Scopus, and Web of Science (Science Citation Index and Social Science Citation Index). ***Date*** The search was conducted 24 May 2022 but the authors did not state the date range of the search. **Risk of bias assessment** Cochrane Risk of Bias tool RoB 2.0	**Participants** 1,885 participants Adult cancer patients (with any cancer diagnoses and at any stage) undergoing radiotherapy and receiving oral supplementation for prevention or management of radiation dermatitis (RD) **Interventions** Oral supplements: Curcumin/Curcuminoids/Nanocurcumin (3 RCTs), glutamine (3 RCTs), Wobe-Mugos (proteolytic enzyme combination) (3 RCTs), Pentoxifylline (1 RCT,) α-Tocopherol + β-Carotene (1 RCT), Anthocyanins (1 RCT), Adlay Bran Extract (1 RCT), Nutrison® Oral Nutritional Supplement (1 RCT), β-hydroxy-β-ethylbutyrate/Arginine/Glutamine (HMB/Arg/Gln) (1 RCT), Sucralfate (1 RCT), Zinc (1 RCT). **Control** Placebo and/or no treatment **Outcome measures**	**Results for risk of bias assessment of primary studies included in the review** Most studies (12 RCTs) were assessed as having a high risk of bias. Five studies were evaluated as low risk of bias. The most common methodological weaknesses were inadequate reporting of randomization methods and lack of blinding. **GRADE** Certainty of evidence ranged from moderate to low across the meta-analyzed interventions. Evidence for oral curcuminoids was rated moderate certainty, while evidence for glutamine and Wobe-Mugos was rated low certainty, primarily due to concerns about risk of bias in the included studies and substantial inconsistency (heterogeneity) between trial results. **Results for outcome measures** Prevention or reduction of radiation dermatitis (RD) severity: Three meta-analyses for the main oral supplementation interventions Curcuminoids (curcumin/nanocurcumin), glutamine, (proteolytic enzyme combination Wobe-Mugos: none of the pooled results reached statistical significance.	**Quality assessment of the SR** Moderate quality according to AMSTAR 2 checklist. Due to the lack of publication bias assessment, and lack of publication of funding sources from the studies. **Comments** The conclusions of this SR are limited by the high heterogeneity in interventions due to varied cancer types, radiotherapy regimens, oral supplements, doses, treatment duration, comparators, and outcome measures. Only a small number of studies were included for each intervention, and some included only one RCT.

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

	RTOG (~10 studies), CTCAE (3 studies), CTC (1 study), RDS Score (2 studies), Baker-Leigh Score, Skin reaction severity scale (1 study), Study-specific scale, Custom RD scoring system (1 study). **Measure of treatment effect** Mantel-Haenszel random-effects model using RevMan 5.4. Results expressed as Risk Ratios (RRs) with 95% confidence intervals.	**Subgroup analysis** The review performed subgroup analyses by type of oral supplement, including curcuminoids, glutamine, and Wobe-Mugos. None of the subgroup meta-analyses demonstrated a statistically significant reduction in severe radiation dermatitis. **Adverse events:** The review concluded that, except for a small number of gastrointestinal adverse events (diarrhea, nausea, abdominal bloating, mild watery stools, abdominal distention), oral supplementation was generally well tolerated by cancer patients receiving radiotherapy. However, adverse-event reporting was inconsistent across studies, and some trials did not assess or report safety outcomes. **Conclusion** *"Most oral supplements cannot yet be recommended to manage RD due to insufficient or conflicting evidence. Oral curcuminoids, glutamine, and Wobe-Mugos showed no statistical difference in managing more severe RD. In addition, the certainty of the evidence was evaluated as moderate to low for outcomes of moist desquamation and RD grade 2 or greater with the use of these products... In addition, we highlight the importance of longer follow-up, which allow a better assessment of the safety and tolerance of oral supplementation."*	
Zhan, L., Qia, M., Cha, Y., & Gao, X. (2026). Effect of curcumin intervention on radiation-induced injury: A GRADE-based systematic review and meta-analysis. BMC Cancer, 26, Article 745. https://doi.org/10.1186/s12885-026-15985-5			
Type of review and data synthesis Systematic review and meta-analysis. **Studies: n and design** 17 RCTs **Search strategy:** **Databases** PubMed, Web of Science (WoS), Embase, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Database, China	**Studies and participants** 1,307 participants Adults at any stage and with any type of cancer receiving radiotherapy or radiochemotherapy and treated with oral or topical curcumin. **Interventions** Curcumin administered as: oral capsules, nano-curcumin capsules, bio-enhanced turmeric capsules, mouthwash, oral gel, topical gel, topical cream, and turmeric-based cream.	**Results for risk of bias assessment of primary studies included in the review** Most studies (n=13) were rated as having "some concerns" because of insufficient reporting, particularly regarding randomization and allocation concealment. Only two studies were judged to be clearly low risk, while two studies were considered high risk of bias. **GRADE** The certainty of evidence ranged from moderate to high across outcomes. Evidence was rated high for the	**Quality assessment of the SR** Moderate according to AMSTAR2. The SR did not have any critical flaws but only partially assessed the impact of RoB on results and sources of funding for the included studies were not reported. **Comments** The conclusions of this SR are limited by the high heterogeneity in curcumin formulations and outcome measures.

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

Science and Technology Journal Database (VIP), and China Biomedical Medicine Database (CBM). **Dates** From database inception to 2 July 2025 **Risk of bias assessment** Cochrane Risk of Bias tool RoB 2.0	**Control** Placebo, standard mouthwash, benzydamine mouthwash, sodium bicarbonate mouthwash, povidone-iodine mouthwash, baby oil, HPR/placebo, and other standardized interventions. **Outcome measures** Incidence of radiation-induced injury (RII)11 RCTs: (RTOG, World Health WHO toxicity grading scale, RDS, NCI-CTC v2, CTCAE v4). Incidence of severe RII (Grade ≥3) 10 RCTs: (RTOG, WHO, RDS, NCI-CTC v2, CTCAE v4). Radiation injury severity score 17 RCTs: (RTOG, WHO, RDS, NCI-CTC v2, and CTCAE v4. Pain (Numeric Rating Scale, NRS) 2 RCTs Pain (Visual Analogue Scale, VAS) 2 RCTs Weight loss 3 RCTs Adverse events 2 RCTs **Measure of treatment effect** Risk Ratio (RR) with 95% confidence interval (CI) for dichotomous outcomes; Standardized Mean Difference (SMD) with 95% CI for continuous outcomes. Random-effects meta-analysis was used.	incidence of severe radiation-induced injury and pain measured by the NRS, while evidence for overall radiation-induced injury, radiation injury severity scores, pain measured by the VAS, weight loss, and adverse events was rated moderate, mainly due to concerns about heterogeneity, imprecision, or risk of bias. **Results for outcome measures** *Incidence of radiation-induced injury (11 RCTs):* Not statistically significant. *Incidence of severe radiation (10 RCTs):* RR = 0.58 (0.46, 0.74), p < .001 *Radiation injury severity score (17 RCTs):* SMD = -0.90 (-1.25, -0.55), p < .001 *Pain intensity (2 RCTs):* SMD = -7.56 (-9.47, -5.65), p < .001 *Pain intensity (2 RCTs):* VAS SMD = -1.53 (-2.52, -0.54), p = .002 *Not significant: Weight loss (3 RCTs)*: SMD = -0.69 (-1.25, -0.13), p = .015 **Subgroup analysis** Curcumin's benefits were generally consistent across different patient groups. The greatest reductions in severe radiation-induced injury were observed among patients receiving radiochemotherapy, those with head and neck cancer, and those using oral curcumin formulation. **Adverse events** Curcumin did not appear to increase adverse events compared with control interventions. However, safety data were available from only two studies. **Conclusion** "*The synthesized evidence suggests that curcumin may have beneficial effects in reducing the incidence of severe radiation induced injury. In addition, it seems that it could be beneficial at reducing radiation injury severity score, pain score, and weight. Also, both patients undergoing radiotherapy and radiochemotherapy were benefited from curcumin treatment. However, large-scale, well-designed*	Studies included in the SR had small sample sizes. Most included studies involved head and neck cancer patients.

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

		prospective studies are warranted to confirm these findings."	
Robijns, J., Becherini, C., Caini, S., Ryan Wolf, J., van den Hurk, C., Beveridge, M., Lam, H., Bonomo, P., Chow, E., & Behroozian, T. (2023). *Natural and miscellaneous agents for the prevention of acute radiation dermatitis: A systematic review and meta-analysis.* Supportive Care in Cancer, 31, Article 195. https://doi.org/10.1007/s00520-023-07656-z			
Type of review and data synthesis Systematic review and meta-analysis. **Studies: n and design** 19 RCTs, 16 RCTs included in the meta-analysis. **Search strategy:** **Databases** OVID MEDLINE, Embase, Cochrane Library. **Dates** From 1946 to January 2023. **Risk of bias assessment** Cochrane Risk of Bias tool RoB	**Studies and participants** 3,392 participants Cancer patients undergoing radiotherapy. Any type of cancer at any stage. **Interventions** Aloe vera (6 RCTs), oral enzyme mixtures (2 RCTs), olive oil (2 RCTs), calendula preparations (4 RCTs), and curcumin (5 RCTs) **Control** Placebo, standard skin care, mild soap, aqueous cream, troamine cream, Essex cream, Sorbolene cream, wound gel dressings, steroid cream, baby oil, or no intervention. **Outcome measures** RTOG Criteria, RTOG/EORTC Criteria, Acute Radiation Morbidity Scoring Criteria, RISRAS, Catterall Skin Scoring Profile (CSSP), Dermatology Life Quality Index (DLQI), (VAS), and patient-reported symptom measures. **Measure of treatment effect** Relative Risk (RR) with 95% confidence intervals for dichotomous outcomes; Standardized Mean Difference (SMD) with 95% confidence intervals for continuous outcomes; random-effects meta-analysis.	**Results for risk of bias assessment of primary studies included in the review** Approximately 70% of the included study cohorts were judged to have a high risk of bias, primarily due to lack of blinding of participants and outcome assessors. **GRADE** Overall certainty of evidence was generally low, with most outcomes rated as very low or low certainty. Among the evaluated outcomes, eight were rated very low certainty, ten low certainty, two moderate certainty, and only one outcome achieved a high-certainty rating, largely because many included studies had high risk of bias, small sample sizes, and methodological limitations. **Results for outcome measures** ***Curcumin (5 RCTs):*** No significance for moist desquamation and Radiation Dermatitis Severity (RDS) score. ***Aloe vera (6 RCTs):*** No significance for dry desquamation, moist desquamation, erythema, and itching. ***Oral enzyme mixtures (2 RCTs)***: Statistically significant results for: Moist desquamation: RR = 0.52, (0.31, 0.85), p = 0.009. RTOG Grade 2+ radiation dermatitis: RR = 0.42 (0.30, 0.58), p < 0.00001. RTOG Grade 3+ radiation dermatitis: RR = 0.18 (0.06, 0.55), p = 0.003. Maximum RTOG grade: SMD = -1.02 (-1.41, -0.63), p < 0.00001. ***Olive oil (2 RCTs):*** RTOG Grade 2+ radiation dermatitis RR = 0.66 (0.51, 0.85), p = 0.001. No significance for other outcomes.	**Quality assessment of the SR** Moderate according to the AMSTAR 2 checklist. Methods only partially described as this SR was part of guideline development and the authors did not provide a protocol registration. **Comments** Although the SR was of moderate quality, the confidence in the findings are low because of the limitations of the included studies such as the high risk of bias of most included studies, small numbers of trials for each intervention, heterogeneity across studies (patient populations, cancer types, outcome measures, radiotherapy regimes), and lack of publication bias assessment. Most (fourteen) of the studies focused on breast cancer patients, limiting generalizability.

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

		Calendula preparations (4 RCTs): No significance for moist desquamation, RTOG Grade 2+ radiation dermatitis, and treatment interruptions due to severe radiation dermatitis. **Subgroup analysis** The subgroup analyses found that neither oral nor topical curcumin demonstrated a significant benefit in preventing radiation dermatitis**.** **Adverse events** Adverse events were not assessed. **Conclusion** *"This systematic review and meta-analysis on the use of natural and miscellaneous agents to prevent RD revealed that only oral enzymes and olive oil have potentially positive benefits in preventing severe RD. However, due to limited and doubtful scientific evidence, no concrete conclusions could be made about these types of natural agents. On the other hand, no beneficial effect of aloe vera, olive oil, calendula, and curcumin (oral and topical) for RD prevention could be retrieved. The high heterogeneity between studies, low patient numbers and limited comparability of outcomes reveal a need for increased standardization in outcome assessment across trials on RD."*	

Abbreviations
CI: confidence interval
CRTX: Chemoradiotherapy
CSSP: Catterall Skin Scoring Profile
CTC: Common Toxicity Criteria
CTCAE: Common Terminology Criteria for Adverse Events
DLQI: Dermatology Life Quality Index
EGCG: epigallocatechin-3-gallate, a naturally occurring flavonoid
EORTC QLQ-C30– European Organization of Research and Treatment of Cancer Quality of Life Questionnaire
NCI-CTC: National Cancer Institute Common Terminology Criteria
NRS: Numeric Rating Scale
PROMIS: Patient-Reported Outcomes Measurement Information System
RCT: randomized controlled trial
RDS Score: Radiation Dermatitis Severity Score
RoB: Cochrane Risk of Bias Tool version 1
RTOG: Radiation Therapy Oncology Group toxicity scale
RTX: Radiotherapy
SMD: standardized mean differences
SUCRA: Surface Under the Cumulative Ranking Curve
UC: Usual care
VAS: Visual Analog Scale
WHO: World Health Organization
WLC: Waitlist control
WMD: Weighted mean difference.

***AMSTAR 2 Critical Domain Items**
1. Was the review protocol established a priori (e.g., registered in PROSPERO)?
2. Was the search comprehensive and included multiple databases, grey literature, and appropriate search strategies?

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine

3. [Did the authors provide a list of excluded studies and justify the exclusions?]
4. Was the risk of bias (RoB) of included studies assessed using appropriate tools?
5. If a meta-analysis was conducted, were the methods used appropriate and clearly described?
6. Did the authors consider the RoB in individual studies when discussing the results?
7. Was publication bias assessed and discussed appropriately?

© 2026 The CAM Cancer Collaboration. The website cam-cancer.org is managed by Norway's National Research Centre for Complementary and Alternative Medicine