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| Supplementary Data 1. Clinical trials evaluating *Curcuma longa* for arthritis symptoms |
| Trials | Subject1 | Composition of treatments | Treatment protocols of curcuminoid (C) preparations | Outcomes | Ref● |
| Deodhar et al. (1980) | RA | Turmeric powder | Crossover (n=18), 1.2g/d C, 300mg/d phenylbutazone; 2wk  | C or phenylbutazone:↓morning stiffness, ↑walking rate, ↓joint swelling NE: grip strength | 1 |
| Kuptniratsaikul et al. (2009) | OA | Ethanol extract of turmeric (w/o oil) | 1g/d C (n=45), 800mg/d ibuprofen (n=46); 6wk | C or ibuprofen vs baselines:↓level walking pain, ↓stairs walking pain/time, ↓100m walk timeC vs ibuprofen: ↓pain on stairs,Similar efficacy (not significantly different): pain on level walking, walking rate, rate of ascending/descending stairs | 2● |
| Belcaro et al. (2010) | OA | Meriva® (curcuminoid-phosphatidylcholine phytosome complex)2Ratio=75%:15%:10% | 200mg/d C (n=20), control (n=20); 3mo | C vs baseline: ↓global WOMAC score, ↑treadmill walking distance, ↓CRP levelControl (vs baseline): NE: WOMAC, CRP, treadmill walking | 3 |
| Belcaro et al. (2010) | OA | Meriva® (curcuminoid-phosphatidylcholine phytosome complex) | 200mg/d C (n=45), control (n=44); 8mo | C vs baseline: ↓global WOMAC score, ↑treadmill walking distance, ↓blood, ↓IL-beta, ↓IL-6, ↓sCD40L,↓ sVCAM-1, ↓ESRControl (vs baseline): NE: WOMAC, treadmill walking, blood measurementsC vs control: ↓painkiller use, ↓GI complications, ↓distal edema, ↓management/non-drug treatment costs | 4 |
| Chandran et al. (2012) | RA | BCM-95®/Biocurcumax(curcuminoids + non-curcumin fraction of turmeric, incl. turmeric volatile oil)Ratio=79%:17%:4% | 500mg/d C (n=14), 50mg/d diclofenac (n=12), 500mg/d C + 50mg/d diclofenac (n=12); 8wk | All treatment groups vs baselines: ↓Disease Activity Score, ↓global pain assessment, ↓total painful/swollen joints, ↓Disability Index C vs baseline: ↓blood CRPC superior to diclofenac in ↓pain | 5● |
| Pinsornsak and Niempoog (2012) | OA | Ethanol extract of turmeric | 1g/d C + 75mg/d diclofenac (n=37), placebo + 75mg/d diclofenac (n=36); 3mo | C + diclofenac vs diclofenac:Similar efficacy for VAS pain score, KOOS | 6 |
| Kerstia et al. (2012) | OA | Ethanol extract of turmeric | 90mg/d C (n=39), 75mg/d diclofenac (n=41); 4wk | C or diclofenac vs baselines: ↓COX-2 secretion by knee joint synovial fluid monocytes | 7 |
| Madhu et al. (2013) | OA | Turmacin™/NR-INF-02 (curcuminoid-free polysaccharide fraction from turmeric) | 1g/d C (n=29), 1.5g/d glucosamine sulfate (GS) (n=28), 1g/d C + 1.5g/d GS (n=24), placebo (n=29); 42d | C vs placebo: ↓VAS pain score, ↓WOMAC pain scale, ↓CGIC, ↓use of acetaminophen | 8● |
| Henrotin et al. (2014) | OA | Flexofytol®(thin dispersion of curcuminoids in emulsifier) | 252mg/d C (n=22); 84dNo controls | Flexofytol®vs baseline: ↓blood Coll-2-1, ↓patient’s global assessment disease activity (VAS score)NE: Coll-2-1NO2, Fib3-1, Fib3-2, CRP, CTX-II, MPO levels | 9 |
| Appelboom et al. (2014) | OA | Flexofytol®(thin dispersion of curcuminoids in emulsifier) | 168-252mg/d C (n=820); 6moNo controls | Flexofytol®vs baseline: ↓pain, ↑flexibility, ↑quality of life, ↓use of concomitant therapies | 10 |
| Kuptniratsaikul et al. (2014) | OA | Ethanol extract of turmeric (w/o oil)Ratio=55%:32%:13% | 1.2g/d C (n=171), 1.5g/d ibuprofen (n=160); 4wk | C or ibuprofen vs baselines: ↓ all WOMAC values, ↑6-min walk distanceC vs ibuprofen:Similar efficacy: WOMAC, walking distance | 11● |
| Nagakawa etal. (2014) | OA | Theracurmin®(curcuminoids dispersed with colloidal nanoparticles) | 180mg/d C (n=18), placebo (n=23); 8wk | C vs placebo: ↓VAS scores, ↓no. subjects needing CelecoxibNE: JKOM scores | 12● |
| Panahi et al. (2014) | OA | C3 complex® (curcuminoid mixture containing Bioperine®/piperine)Ratio=70-80%:15-25%: 2.5-6.5% | 1.5g/d C (n=19), placebo (n=21); 6wk | C vs placebo: ↓WOMAC pain, ↑physical function, ↓VAS pain score, ↓LPFI pain score, ↓use of naproxen | 13● |
| Rahimnia et al. (2015)Analysis of data from ref. 34 | OA | C3 complex® (curcuminoid mixture containing Bioperine®/piperine) | 1.5g/d C (n=19), placebo (n=21); 6wk | C vs placebo:NE: blood TNF-alpha, TGF-beta, IL-4, IL-6, hs-CRP, ESR | 14 |
| Panahi et al. (2016)Analysis of data from ref. 34 | OA | C3 complex® (curcuminoid mixture containing Bioperine®/piperine) | 1.5g/d C (n=19), placebo (n=21); 6wk | C vs placebo: ↑serum SOD activity, ↑GSH levels, ↓MDA levels | 15 |
| Srivastava et al. 2016 | OA | Haridra curcumin(organic solvent extract of turmeric +rhizome powder)Ratio=1:0.51:0.15 | 1g/d C + 100mg/d diclofenac + 20mg/d omeprazole (n=66), placebo + 100mg/d diclofenac + 20mg/d omeprazole (n=67); 4mo | C + diclofenac vs placebo + diclofenac: ↓WOMAC- and VAS-measured pain, ↑physical function, ↓blood ROS, ↓MDA  | 16 |
| Amalraj et al. (2017) | RA | Acumin™(reconstitued mixture of curcuminoids+turmerone oil+polysaccharides+fiber+turmerin protein)Ratio+1:0.15:0.04 | 1g/d C (n=12), 500mg/d C (n=12), placebo (n=12); 3mo | C vs placebo (both doses): ↓DAS 28 and VAS scores, ↑ACR20 scores, ↓ CRP, ↓RF, ↓ESR, ↓total swollen and tender joints | 17 |
| Shin et al. (2017) | OA | Theracurmin® | 2.1g/d C (n=12), 2.1g/d C + aerobic exercise (n=12); 4wk | Theracurmin (T) or T + Exercise (E) vs baselines: ↓VAS score, ↓WOMAC scores, ↑knee range of motion, ↑walking ability, ↑muscle strength, ↑ balance, ↑muscle mass, ↓% body fatT vs T + E: Similar efficacy all measurements | 18 |
| Haroyan et al. (2018) | OA | CuraMed®/BCM-95 | 1g/d C (n=66), placebo (n=68); 12wk | C vs placebo: ↓pain standing from seated chair, ↑walking speedNE: WOMAC scores, ESR, CRP | 19 |
| Panda et al. (2018) | OA | Curene®(curcuminoids in Aquesome®Matrix) | 500mg/d C (n=24), placebo (n=22); 60d | C vs placebo: ↓WOMAC, ↓VAS, ↓pain score, ↓stiffness score, ↑physical function | 20 |
| Shep et al. (2019) | OA | BCM-95® | 1500mg/d C (n=70),100mg/d diclofenac (n=69), 28d | C or diclofenac vs baselines: ↓WOMAC, ↓KOOSNE: pain intensityC vs diclofenac: ↓BW, ↓flatulence,↓ use H2 blockersSimilar efficacy: VAS pain score, KOOS scores | 21 |

1RA=rheumatoid arthritis patients, OA=osteoarthritis patients. 2Ratio=curcumin: demethoxycurcumin: bisdemethoxycurcumin.

●Trials of sufficient quality to be included in systematic reviews and meta-analyses.

Abbreviations: ACR20=American College of Rheumatology improvement scores, CGIC=Clinical Global Impression of Change scale; Coll2-1=type II collagen 108HRGYPGLDG116; Coll2-1NO2=type II collagen nitrated form 108HRGY(NO2)PGLDG116; COX=cyclooxygenase, CRP=high sensitivity C-reactive protein; CTX-II=urinary C-terminal telopeptides of type II collagen; DAS-28=disease activity score-28; ESR=erythrocyte sedimentation rate; Fib3-1=TCQDINECETTNECR peptide of fibulin-3; Fib3-2=CVCPVSNAMCR peptide of fibulin-3; JKOM=Japanese knee osteoarthritis measure; KOOS=knee injury and osteoarthritis outcome score; LPFI= Lequesne’s pain functional index; MDA=malondialdehyde; MPO=myeloperoxidase; RF=rheumatoid factor; ROS=reactive oxygen species; sVCAM-1=soluble vascular cell adhesion molecule-1; VAS=visual analogue scale of pain; WOMAC=Western Ontario and McMaster Universities Osteoarthritis Index scale

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