Research Title	Structural Modification of Curcuminoids from *Curcuma longa* L. to Enhance Their Antimicrobial Activities
Researchers	Chatchawan Changtam Apichart Suksamrarn Souwalak Phongpaichit
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The parent curcuminoids, curcumin (**1**), demethoxycurcumin (**2**) and bisdemethoxycurcumin (**3**), have been chemically modified to give 16 analogues. These included 3 demethyl analogues, 3 isoxazole alaogues, 7 bromopentyl ether analogues and 3 pyridinium analogues. Curcuminoids and analogues were subjected to antimicrobial activity evaluations, using *Staphylococcus aureus* ATCC25923 (SA), methicillin-resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa* ATCC27853 (PA), *Escherichia coli* ATCC25922 (EC), *Candida albicans* NCPF3153 (CA) and *Cryptococcus neoformans* ATCC90113 (CN). In this assay, vancomycin, gentamicin and amphotericin B were used as standard drugs. The parent curcuminoids (**1-3**) showed low antimicrobial activity, with MIC values of 200 to >200 ug/ml. The demethyl analogues (**31-33**) and isoxazole analogues (**34-36**) showed comparable activity to the parent curcuminoids, except compound **33** that exhibited activity against MRSA of more than 3-fold higher than **2**, and **35a+35b** mixture exhibited activity against SA more than 6-

fold higher than **2**. The bromopentyl ether analogues (**37-43**) were inactive to the test. The pyridinium analogues (**44-46**) were the most active analogues against SA and MRSA, with MIC values in the range 8 - 128 ug/ml, which were 2- to 25-folds more active than the parent compounds.

The parent curcuminoids and their analogues that have been synthesized showed lower antimicrobial activities than the standard drugs. However, the knowledge gained from this work is valuable for the design of structural modification of curcuminoids to other analogues with enhanced antimicrobial activities, possibly comparable or higher than the standard drugs.