

Article

Phytochemical Analysis and Antioxidant, Antimicrobial, and Antiaging Activities of Ethanolic Seed Extracts of Four *Mucuna* Species

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Supplementary material

	10 20 30 40 50
MGG	ATGCGATACT TGGTGTGAAT TGCAGAATCC CGTGAACCAT CGAGTCTTTG
MMM	ATGCGATACT TGGTGTGAAT TGCAGAATCC CGTGAACCAT CGAGTCTTTG
MIT	ATGCGATACT TGGTGTGAAT TGCAGAATCC CGTGAACCAT CGAGTCTTTG
MPR	TTGCGATACT TGGTGTGAAT TGCAGAATCC CGTGAACCAT CGAGTCTTTG

	60 70 80 90 100
MGG	AACGCAAGTT GCGCCCCAAG CCATTAGGTT GAGGGCACGC CTGCCTGGGT
MMM	AACGCAAGTT GCGCCCCAAG CCATTAGGTT GAGGGCACGC CTGCCTGGGT
MIT	AACGCAAGTT GCGCCCCAAG CCATTAGGTT GAGGGCACGC CTGCCTGGGT
MPR	AACGCAAGTT GCGCCCCAAG CCATTAGGCC GAGGGCACGC CTGCCTGGGT

	110 120 130 140 150
MGG	GTCACACATC GTTACCCTAA AGY-AAACGT CTCATGTGCG TTTGCAGGGT
MMM	GTCACACATC GTTACCCTAA AGCAAAACGT CTCATGTGCG TGTGCAGGGT
MIT	GTCACACATC GTTACCCTAA AGC-AAACGC CTCATGCGCG TGTGCAGGGT
MPR	GTCACACATC GTTACCCCAA ATGCAAACGC CTCACGTGCG TGCGCAGGGT

	160 170 180 190 200
MGG	GGAAGTTGAC CTCCCGTGGG CCACAA--CT CGCGGCTGGT TAAAAATGCA
MMM	GGAAGCTGAC CTCCCGTGGG GCACGACTCT CGCGGCTGGT TGAAAATGGA
MIT	GGAAGCTGAC CTCCCGTGGG CCACGA--CT CGCGGCTGGT TGAAAATGGA
MPR	GGATGCTGAC CTCCCGCGAG CATCGT--CT CGTGGCTGGT TGAAAATCGA

	210 220 230 240 250
MGG	GTTCATGGTT GAGAATGCCG TGATAAAATG GTGGATGAGC ATTGCTCGAG
MMM	GTTCACGGTT GAGAATGCCG TGATAAAATG GTGGATGAGC GTTGCTCGAG
MIT	GTTCATGGTT GAGAATGCCG TGATAAAATG GTGGATGAGC ATTGCTCGAG
MPR	GTCCGCGGCC GAGCTCGTCG CGACAAAATG GTGGATGAGC GATGCTCGAG

	260 270 280 290 300
MGG	ACCAATCGCG TGCTACTCAG TTAATTTTGG ACTCCTTGAC CCAKAW-GCA
MMM	ACCAATCGCG TGCTACTCAG TTAATTTTGG ACTCTTTGAC CCAGAT-GCG
MIT	ACCAATCGCG TGCGACTCGG TCAATTTTGG ACTCTTCGAC CCAAATCGCG
MPR	ACCAGTCGCG CCGGACCCGG CCAAGGTCGG ACTCCCCGAC CCTACACGCG

	310 320 330 340 350
MGG	TCCTCGGATG CTCCCAACGA GACCTCAGGT CAGGCGGGGC CACCCGCTGA
MMM	TCCTCGGACG CTCCCAACGA GACCTCAGGT CAGGCGGGGC TACCCGCTGA
MIT	TCCACGGACG CTCCCAACGA GACCTCAGGT CAGGCGGGGC CACCCGCTGA
MPR	TCCACGGACG CTCCCAACGA GACCTCAGGT CAGGCGGGGC TACCCGCTGA

	360 370 380 390 400
MGG	GTTTAAGCAT ATCAATAAGC GGAGGAAAAG AAATAACAA GGATTCCCTT
MMM	GTTTAAGCAT ATCAATAAGC GGAGGAAAAG AAATAACAA GGATTCCCTT
MIT	GTTTAAGCAT ATCAATAAGC GGAGGAAAAG AAATAACAA GGATTCCCTT
MPR	GTTTAAGCAT ATCAATAAGC GGAGGAAAAG AAATAACAA GGATTCCCTT

	410 420 430 440 450
MGG	AGTAACGGCG AGCGAACCGG GAAGAGCCCA CCATGAAAAT CGGTCGTCAT
MMM	AGTAACGGCG AGCGAACCGG GAAGAGCCCA CCATGAAAAT CGGTCGTCAT
MIT	AGTAACGGCG AGCGAACCGG GAAGAGCCCA CCATGAAAAT CGGTCGTCAT
MPR	AGTAACGGCG AGCGAACCGG GAAGAGCCCA CCATGAAAAT CGGTCGCCCT

	460 470 480 490 500
MGG	CGGCGTCCGA ATTGTAGTCT G
MMM	CGGCGTCCGA ATTGTAGTCT G
MIT	CGGCGTCCGA ATAGTAGTCT G
MPR	CGGCGTCCGA ATTGTAGTCT G

Figure S1: Alignment of nucleotide sequences of the ribosomal DNA ITS2 regions of four *Mucuna* species: *M. gigantea* (MGG), *M. interrupta* (MIT), *M. monosperma* (MMM), and *M. pruriens* (MPR) (continued)

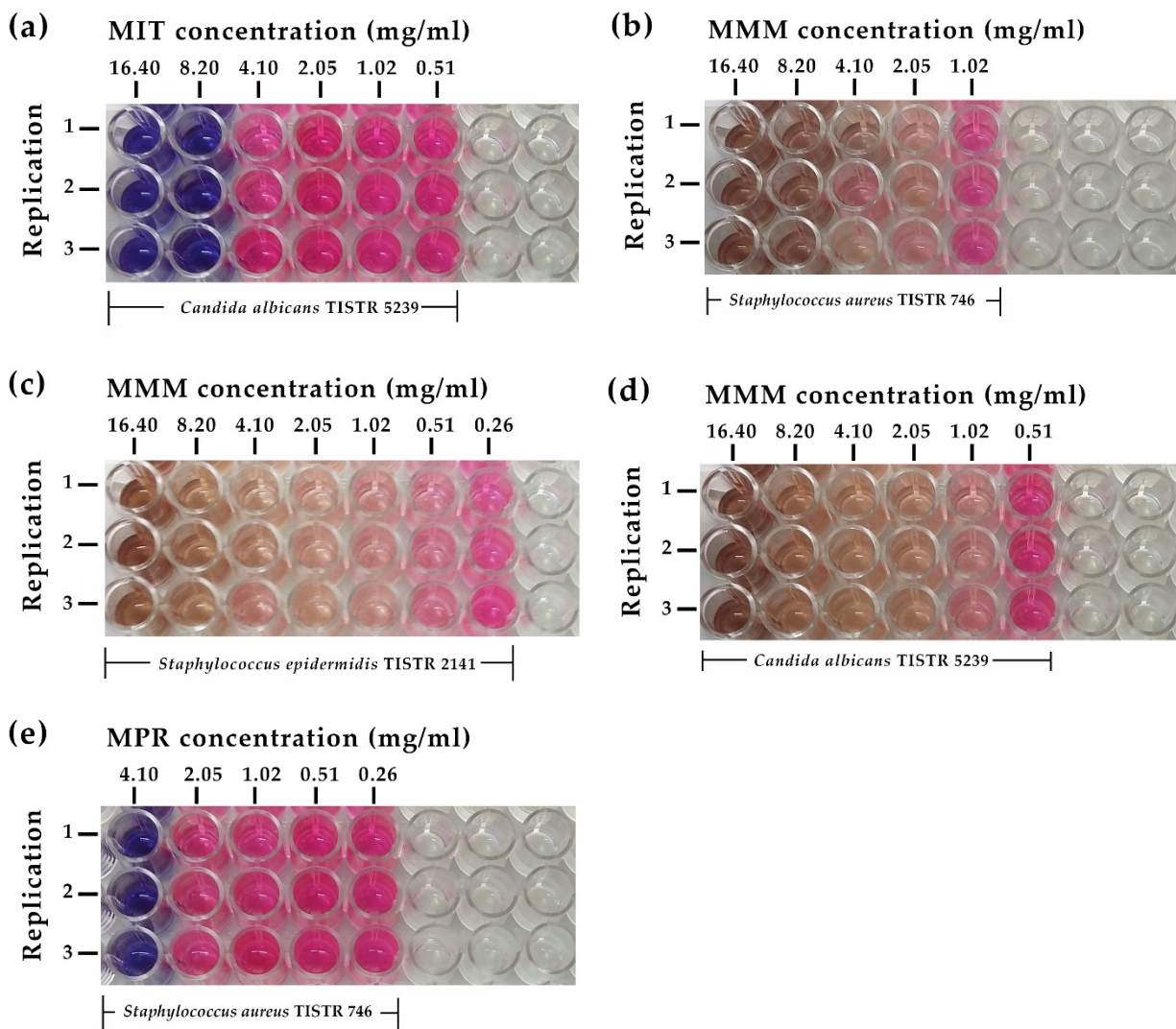


Figure S2: Minimal inhibitory concentrations (MICs) of *Mucuna* seed extracts on skin-related pathogen evaluated by broth micro-dilution and resazurin reduction methods. (a) Resazurin reduction of *Candida albicans* TISTR 5239 incubated with *M. interrupta* (MIT), (b) Resazurin reduction of *Staphylococcus aureus* TISTR 746 incubated with *M. monosperma* (MMM), (c) Resazurin reduction of *Staphylococcus epidermidis* TISTR 2141 incubated with *M. monosperma* (MMM), (d) Resazurin reduction of *Candida albicans* TISTR 5239 incubated with *M. monosperma* (MMM), and (e) Resazurin reduction of *Staphylococcus aureus* TISTR 746 incubated with *M. pruriens* (MPR). MICs were measured at the lowest concentrations of tests that did not change to pink color.

Table S1: Phytochemical constituents of *Mucuna* seed extracts evaluated by GC-MS analysis.

No.	MGG			MIT			MMM			MPR		
	RT	Compounds	%Area	RT	Compounds	%Area	RT	Compounds	%Area	RT	Compounds	%Area
1	6.79	Azetidine	8.3	6.01	Undecane	18.5	6.01	Undecane	3.2	6.07	1,2,3-Propanetriol, monoacetate	13.6
2	12.36	2,4-Di-tert-butylphenol, acetate	66.7	19.78	2-amino-6-cholo-3-cyano-5-(3-methyl-1-butenyl) pyrazine	21.5	6.29	Maltol	9.7	8.07	Butyl 2-methylbutanoate	11.6
3	16.86	2-Propenenitrile, 2-chloro-	8.3	21.65	Bis(2-ethylhexyl) phthalate	43.1	11.07	Cytidine	2.5	16.49	Palmitic acid	27.9
4	18.77	Urea, methyl-	16.7	23.39	Hexamethylcyclotrisiloxane	16.9	14.47	Resorcinol	9.0	18.15	Linoleic acid	29.3
5	-	-	-	-	-	-	16.48	Palmitic acid	13.2	18.38	Stearic acid	8.8
6	-	-	-	-	-	-	18.19	Dodecanamide, N-(2-hydroxyethyl)	29.8	19.74	4-Hydroxy-2,2,6-trimethylcyclohex-2-enone	4.8
7	-	-	-	-	-	-	19.78	5-(N-piperidyl)-4-oxopentanoic acid piperidide	9.1	21.14	2-Ethylacridine	2.0
8	-	-	-	-	-	-	21.66	Bis(2-ethylhexyl) phthalate	23.5	21.66	Bis(2-ethylhexyl) phthalate	2.0