Assessing Anti-inflammatory Activities and Compounds in Switchgrass (*Panicum virgatum*)

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SUPPLEMENTARY INFORMATION

Supplementary Table S1. Putative identification of the secondary metabolites with known anti-inflammatory activities in switchgrass through untargeted metabolomics analyses.

Compound	**Reference**
4-Hexylresorcinol	Ahn, *et al.* [1], Frankos, *et al.* [2]
Aescin	Sirtori [3]
Altholactone	Al Momani, *et al.* [4], Jiang, *et al.* [5],
Auranofin	Thangamani, *et al.* [6]
Baicalin	He, *et al.* [7]
Bergenin	Srivastava [8]
Bruceine B	Bawm, *et al.* [9]
Coumarin	Venugopala, *et al.* [10]
Dioscin	Aumsuwan, *et al.* [11]
Formononetin 7-O-rutinoside	Singh, *et al.* [12]
Gambogic acid	Kashyap, *et al.* [13]
Kaempferol-7-rhamnoside	Sim, *et al.* [14]
Nevadensin 5-gentibioside	Alhusainy, *et al.* [15]
Okanin 3',4'-diglucoside	Kil, *et al.* [16]
Osthenol-7-O-beta-D-gentiobioside	Kuo, *et al.* [17]
Petunidin 3-glucoside	Huang, *et al.* [18]
Quercetin	Li, *et al.* [19]
Quercetin-3-glucoside	Walton, *et al.* [20]
Quercitrin	David, *et al.* [21]
Rhoifolin	Qin, *et al.* [22]
Rutin trihydrate	Ganeshpurkar and Saluja [23]
Tenylidone	Panic, *et al.* [24]

Supplementary Table S2. *In vitro* biological activities of the extracts derived from the four switchgrass cultivars. Antibacterial and antimycobacterial activities were evaluated against 2 bacterial strains *Cutibacterium acnes* and *Mycobacterium smegmatis*, respectively. Anticancer activity was investigated using human colorectal adenocarcinoma (HT-29) and human malignant melanoma (UCT-MEL-1) cell lines.

Extract	**Antibacterial***	**Antimycobacterial***	**Anticancer+**		**Porcine elastase+**	**Mushroom tyrosinase+**
			HT-29	**UCT-MEL-1**		
Cultivar						
Alamo	>500	>1000	>400	>400	>500	>1000
Kanlow	>500	>1000	>400	>400	>500	>1000
Liberty	>500	>1000	>400	>400	>500	>1000
Show Me	>500	>1000	>400	>400	>500	>1000
Control						
Tetracycline	1.56	-	-	-	-	-
Ciprofloxacin	-	0.31	-	-	-	-
Actinomycin D	-	-	0.040	0.011	-	-
Ursolic acid	-	-	-	-	20.80	-
Kojic acid	-	-	-	-	-	0.45

* Values are expressed as minimum inhibitory concentration (MIC in µg/mL)

+ Values are shown as fifty percent inhibitory concentration (IC_{50}, µg/mL)

Screening of other biological activities of switchgrass. The four cultivars of switchgrass were tested for potential biological activities against several targets based on the stipulated health benefits. Antibacterial activity against *Cutibacterium acnes* (ATCC 6919) and the anti-proliferative activity against human colorectal adenocarcinoma (HT-29) and pigmented human malignant melanoma (UCT-MEL1) were determined using the method described by Lall, *et al.* [25]. Antimycobacterial activity against *Mycobacterium smegmatis* (MC^2 155) was determined using the method described by Reid, *et al.* [26]. Anti-elastase activity against porcine pancreatic elastase was performed according to the methods described by Lall, *et al.* [27]. The tyrosinase inhibitory potential was determined using a colorimetric assay as described in Lall, *et al.* [28]. We found that the cultivars at the highest concentration tested (>0.4 mg/mL) did not exhibit activity against the selected microbes (*C. acnes* and *M. smegmatis*), antiproliferative activity against the selected cancerous cell lines (HT-29 and UCT-MEL-1) or enzyme inhibition (against elastase and tyrosinase) (Supplementary Table 2).

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