Supporting Information to:

Efficient Production of Isoflavonoids by *Astragalus membranaceus* Hairy Root

Cultures and Evaluation of Antioxidant Activities of Extracts

Jiao Jiao,^{†,‡} Qing-Yan Gai,^{‡,§,||} Yu-Jie Fu,*,^{§,||} Wei Ma,*,^{†,±} Xiao Peng,^{§,||} Sheng-Nan, Tan,^{§,||} and Thomas Efferth[#]

†State Key Laboratory of Tree Genetics and Breeding and [§]Key Laboratory of Forest Plant Ecology, Ministry of Education, Northeast Forestry University, Harbin, Heilongjiang 150040, People's Republic of China

Collaborative Innovation Center for Development and Utilization of Forest Resources, Harbin, Heilongjiang 150040, People's Republic of China

School of Pharmaceutical, Heilongjiang University of Chinese Medicine, Harbin, Heilongjiang 150040, People's Republic of China

Department of Pharmaceutical Biology, Institute of Pharmacy and Biochemistry,

Corresponding authors:

*(Y.-J.F.) Tel/fax: +86-451-82190535. E-mail: yujie_fu2011@ yahoo.com.

*(W.M.) Tel/fax: +86-451-82193430. E-mail: mawei@hljucm.net.

University of Mainz, Staudinger Weg 5, 55128 Mainz, Germany

Author Contributions:

[‡]J.J. and Q.-Y.G. contributed equally to this work.

 Table S1. Specific primers used for PCR amplification.

Genes	Primers	Products (bp)
rolB	5-TAGCCGTGACTATAGCAAACCCCTCC-3 (forward)	670
	5-GGCTTCTTTCTTCAGGTTTACTGCAG-3 (reverse)	
rolC	5'-TAACATGGCTGAAGACGACC-3' (forward)	534
	5'-AAACTTGCACTCGCCATGCC-3' (reverse)	
aux1	5'-TTCGAAGGAAGCTTGTCAGAA-3' (forward)	350
	5'-CTTAAATCCGTGTGACCATAG-3' (reverse)	
virD	5'-ATGTCGCAAGGCAGTAAGCCC A-3' (forward)	438
	5'-GGAGTCTTTCAGCAGGAGCAA-3' (reverse)	

Table S2. MS parameters for five main IF constituents in AMHRCs a.

Analytes	DP (V)	CE (V)	CXP(V)	SRM (amu)
	-20			· · · · · · · · · · · · · · · · · · ·
CAG	-20	-10	-5	$445.2 \rightarrow 283.0$
ON	-31	-10	-5	$428.8 \rightarrow 266.9$
ASG	-58	-23	-5	$463.2 \rightarrow 301.1$
CA	-70	-24	-5	$283.0 \rightarrow 268.0$
FO	-55	-31	-5	$267.0 \rightarrow 252.0$

^a DP, CE, CXP and SRM are abbreviations of declustering potential, collision energy, cell exit potential and selected reaction monitoring, respectively.