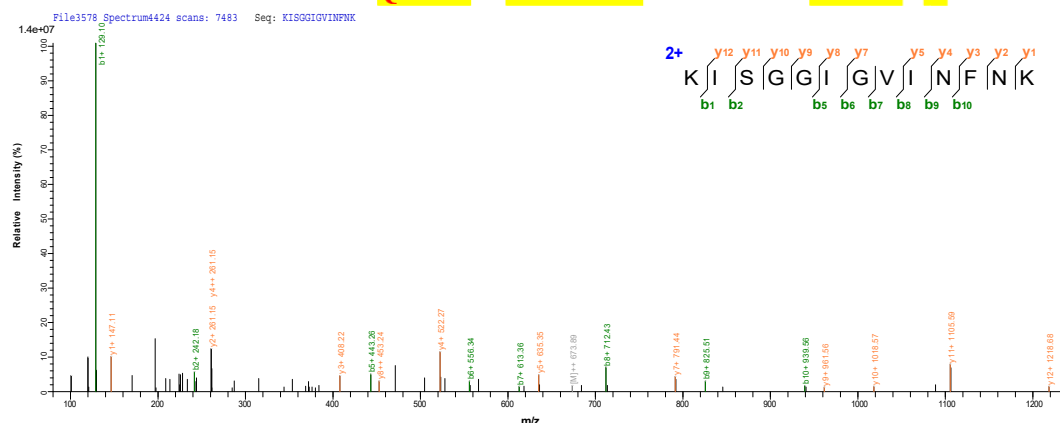


Supplementary Materials: Characterization of the Composition and Biological Activity of the Venom from *Vespa bicolor* Fabricius, a Wasp from South China

Yonghua Wu, Yu Zhang, Danqiao Fang, Jing Chen, Jingan Wang, Lin Jiang and Zhufen Lv

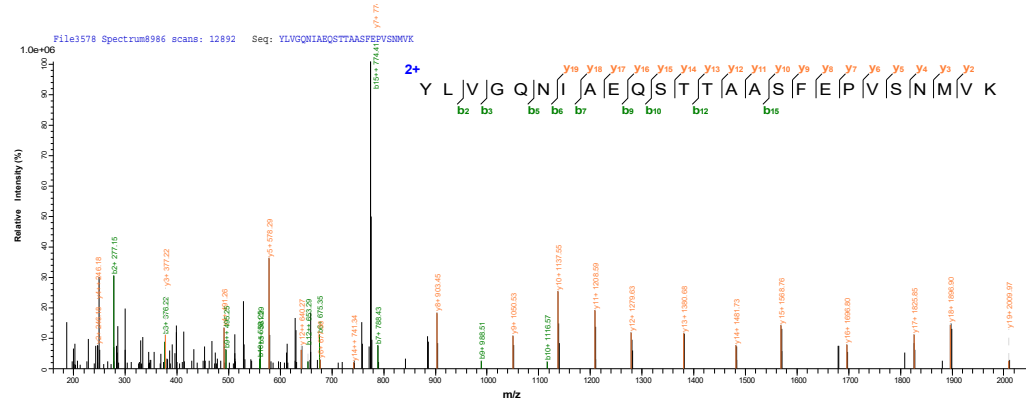
A. Hyaluronidase A

1 NLNR **TNWPK**K IFNIYWNVPT YFCHQHDVYF NELTK **FDIKY** **NPK**GNYR **GDT**
 51 **ISLFYDPGNF** **PAMVPLK**NGT YDIRNEGVPQ KGNITVHLQQ FTK **ELDEIYP**
 101 **KKISGGIGVI** **NFNKWRPIFR** RNVNNLK **INK** **EVSIDLVRKE** HPK **WDKSMIE**
 151 **TEASNRFEKS** AR **IFMEKTLK** LAKDIRNKNK WGYHGYPCP TASTGNPSFD
 201 CDALAMNEND K **LSWLFKYQD** **VLLPSVYVK**H VLKPEEKIGL VRGSVKEAVR
 251 ISKKFEHLPK VLSYWWYAYE DK **MDTFLTET** **DVKNTFR**EIL INGGDGIIW
 301 GTMHDLNKEK CECLK **QYLST** **ILGPIAFK**VM EAVKK **RIPLN** **F**



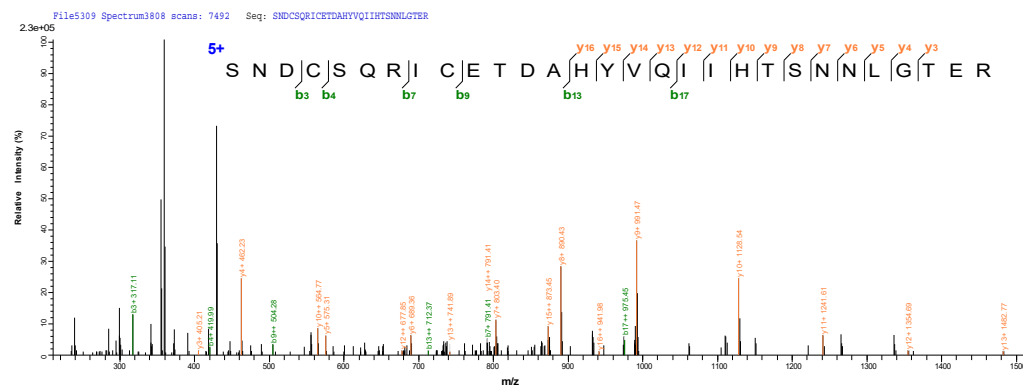
B. Allergen 5

1 NNYCKIKCRS GIHTLCKYGT STKPNCGRSV VKASGLTKAE KLEILKQHNE
 51 FRQKVARGLE TRGNPGPQPP AKSMNTLVWN DELAQIAQVW ASQCKYGHND
 101 CRNTAKYLVG QNIAEQSTTA ASFEPVSNMV KMWSDEVKDY QYGSSKNKLN
 151 DVGHYTMVW AKTKEIGCGN IKYIENGWHH HYLVCNYGPA GNIGNEPIYE
 201 KK



C. Phospholipase A1

1 GLLPKCKLVP EQISFILSTR ENRNGVFLTL DSLKKGILN KSDLSTQVW
 51 FLIHGFISSA NNSNYMDMTK ALLEKND CMV ISIDWRNGAC TNEFQILKFI
 101 GYPKAVENTR TVGKYIADFS KLLMQKYKVS LANIRLIGHS LGAQIAGFAG
 151 KEYQKFKLGK YPEIIGLDPA GPLFKSND CS QRICETDAHY VQIHTSN NL
 201 GTERITLGTVD FYMNNGYNQ P GCYYSFIGET CSHTRAVQYF TECIRHECCL
 251 IGVPQSKNPQ PVSKCTRNEC VCVGLNAKRY PKTGSFYVPV ESKAPYCNK
 301 GKKI



D. Phospholipase A1

1 **FNPCPYSDDT** **VKMILTR**EN K**KHDFYTLDT** **IKK****HNEFK**KS TIKHQVVFIT
 51 HGFTSSADTE NFLAMAKALS DKGNYLVILI DWRVAACTEE MSGIQLAYYS
 101 YAASNTR**LVG** **NYIATVTKML** **VQKYNVPMAN** **IRLIGHSLGA** **HTSGFAGKKV**
 151 **QELGLGKYSE** **IIGLDPAGPS** **FK**SNDCSERI CKTDAHYVQI IHTSNHLGTL
 201 VTLGTVDPMN NGYNQPGCGL PLIGETCSHT RAVK**YFTECI** **KHECCLIGVP**
 251 **QSKKPQPVSK** **CTRNECVCVG** **LNAKTYPKTG** **SFYVPVESKA** **PYCNNK**GKII

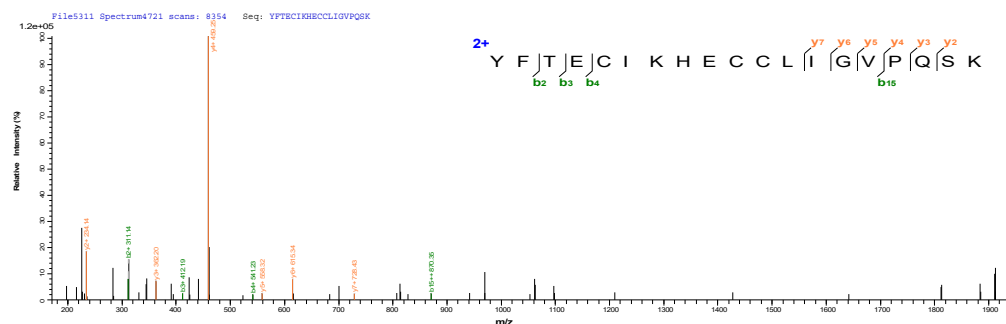
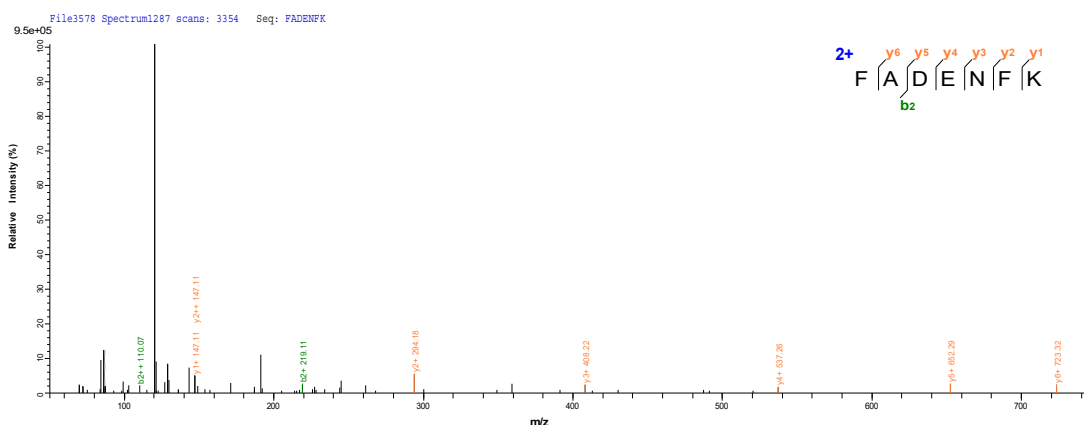


Figure S1. Four proteins in VBV were identified by LC-MS/MS (A–D), and the respective secondary mass spectrograms of proteins 1 to 4 are displayed below. **A)** Complete coding sequence of hyaluronidase A is shown, and a sequence coverage of the matched peptides of protein 1 in hyaluronidase A is highlighted. **B)** Complete coding sequence of allergen 5 is shown, and a sequence coverage of the matched peptides of protein 4 in allergen 5 is highlighted. **C)** Complete coding sequence of phospholipase A1 is shown, and a sequence coverage of the matched peptides of protein 2 in phospholipase A1 is highlighted. **D)** Complete coding sequence of phospholipase A1 protein is shown, and a sequence coverage of the matched peptides of protein 3 in phospholipase A1 is highlighted.

A. Peptidyl-prolyl cis-trans isomerase

1 MKLLLFLGLV AAASCANNAN GPKVTDKWWF DIKIGDADAG RIEIGLFGKT
 51 VPKTVKNFVE LAKKPEGEY KGSVFHRVIK DFMIQGGDFT KGDGTGGRSI
 101 YGDR **FADENF K** LKHYGAGWL SMANAGKDTN GSQFFITVKQ TPWLDGRHVV
 151 FGKIIKGMDI VRKIEKTNTD SRDRPQEDVV IADSGAETVA DPFSVSKDDA
 201 IN



B. Uncharacterized protein

1 MSYDLRSGMW YFDGGQPEVN LRFTR **QYRLI** **LAPPR**ALPKV PRGVPSXXXX
 51 XXMVARALII LIINRLEQLT PAPYTKGTD LRGGSRQNRS ANNRL **LPLIAK**
 101 QSLLRNVVIT PL

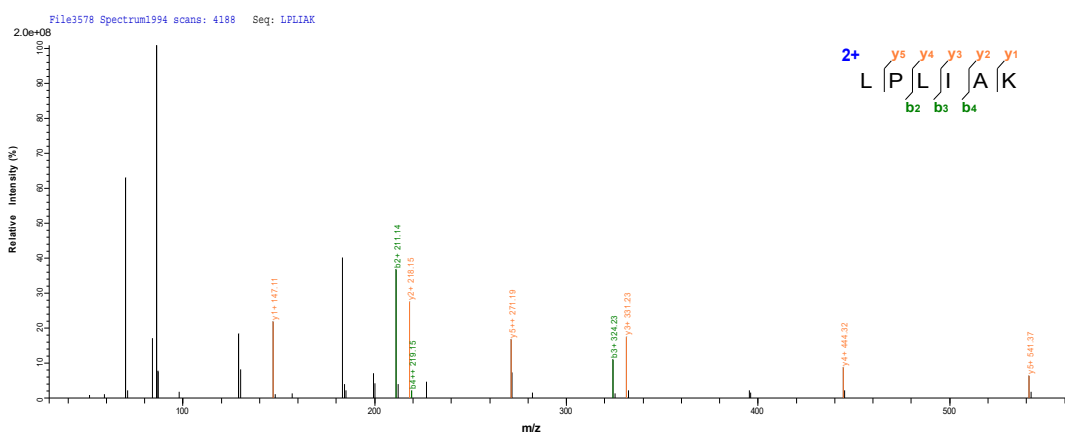


Figure S2. Proteins 5 and 6 match results in the *Apocrita* database. **A)** Complete coding sequence of peptidyl-prolyl cis-trans isomerase is shown, and a sequence coverage of the matched peptides of protein 5 in peptidyl-prolyl cis-trans isomerase is highlighted. **B)** Complete coding sequence of uncharacterized protein is shown, and a sequence coverage of the matched peptides of protein 6 in uncharacterized protein is highlighted.

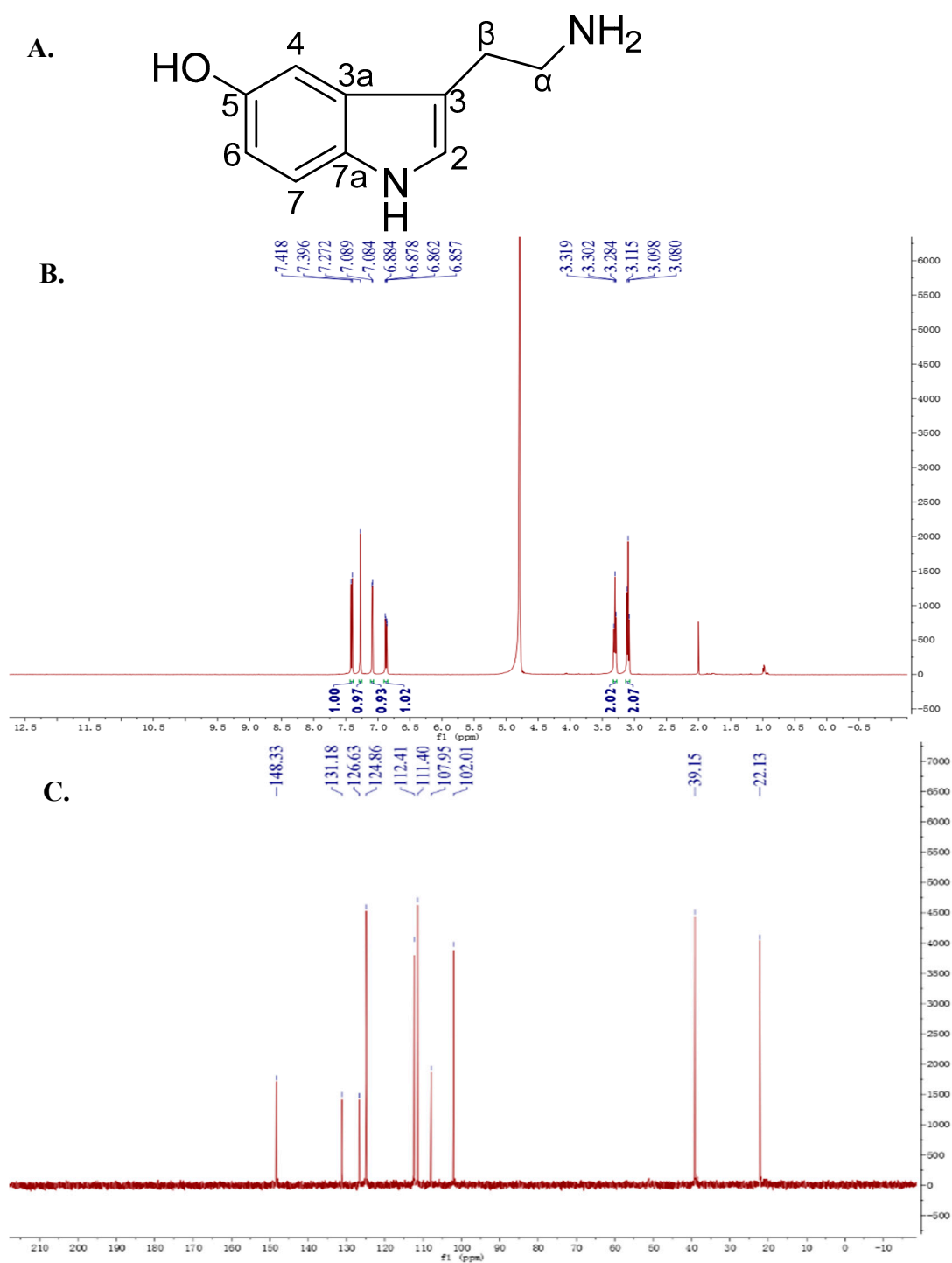


Figure S3. Component 7 of VBV was identified as 5-hydroxytryptamine (5-HT) by NMR. **A)** Structural formula of 5-HT. **B)** ^1H NMR spectrum of 5-HT in D_2O (400 MHz). **C)** ^{13}C NMR spectrum of 5-HT in D_2O (500 MHz).

Vb-MLP 12a

1 INWKGIAAMA K_{KLL}

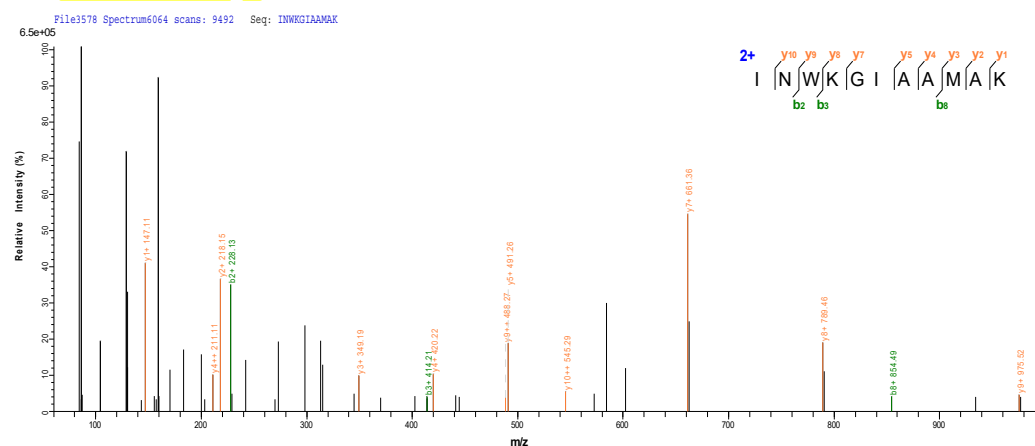


Figure S4. Component 8 of VBV was identified as Vb-MLP 12a by LC-MS/MS. The sequence coverage of the matched peptides is highlighted, and the secondary mass spectrograms of Vb-MLP 12a are displayed below.