

## Supplementary Materials

Review

# ***Ferula sinkiangensis* (Chou-AWei, Chinese *Ferula*): Traditional Uses, Phyto-constituents, Biosynthesis, and Pharmacological Activities**

**Maan T. Khayat <sup>1</sup>, Majed Alharbi,<sup>1</sup> Kholoud F. Ghazawi <sup>2</sup>, Gamal A. Mohamed <sup>3</sup>, and Sabrin R. M. Ibrahim<sup>4,5,\*</sup>**

<sup>1</sup> Department of Pharmaceutical Chemistry, Faculty of Pharmacy, King Abdulaziz University, Jeddah 21589, Saudi Arabia

<sup>2</sup> Clinical Pharmacy Department, College of Pharmacy, Umm Al-Qura University, Makkah 24382, Saudi Arabia

<sup>3</sup> Department of Natural Products and Alternative Medicine, Faculty of Pharmacy,

King Abdulaziz University, Jeddah 21589, Saudi Arabia

<sup>4</sup> Preparatory Year Program, Department of Chemistry, Batterjee Medical College, Jeddah 21442, Saudi Arabia

<sup>5</sup> Department of Pharmacognosy, Faculty of Pharmacy, Assiut University, Assiut 71526, Egypt

\* Correspondence: [sabrin.ibrahim@bmc.edu.sa](mailto:sabrin.ibrahim@bmc.edu.sa); Tel.: +966-581183034

**Table S1.** Secondary metabolites reported from *Ferula sinkiangensis* (Chemical class, molecular weight and formulae, plant part, and origin).

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
Bicyclic sesquiterpene coumarins					
Farnesiferol A (1)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Colladonin (2)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
Coladin (3)	438.24	C <sub>27</sub> H <sub>34</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Isofeterin (4)	440.21	C <sub>26</sub> H <sub>32</sub> O <sub>6</sub>	Roots	Xin jiang Uygur Autonomous Region, China	[30]
Farnesiferone A (5)	380.19	C <sub>24</sub> H <sub>28</sub> O <sub>4</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Xinjiang, China	[25]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Assafoetidnol A (6)	398.49	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Gummosin (7)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Polyanthinin (8)	424.22	C <sub>26</sub> H <sub>32</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Assafoetidnol B (9)	456.21	C <sub>26</sub> H <sub>32</sub> O <sub>7</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Sinkiangenol E (10)	440.21	C <sub>26</sub> H <sub>32</sub> O <sub>6</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Ferukrin (11)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
(3'S, 5'S, 8'R, 9'S, 10'R)-Kellerin (12)	442.23	C <sub>26</sub> H <sub>34</sub> O <sub>6</sub>	Gum resin	Xinjiang, China	[48]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
(3'S, 5'S, 8'R, 9'S, 10'R)-Deacetylkellerin (13)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Colladocin (14)	442.23	C <sub>26</sub> H <sub>34</sub> O <sub>6</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Episamarcandin (15)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Roots	Xinjiang, China	[19]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
(5'S, 8'R, 9'S, 10'R)-Ferukrinone (16)	398.20	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Sinkiangenol D (17)	442.23	C <sub>26</sub> H <sub>34</sub> O <sub>6</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Isosamarcandin (18)	380.19	C <sub>24</sub> H <sub>28</sub> O <sub>4</sub>	Roots	Xinjiang, China	[19]
Feselol (19)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
Ferocaulidin (20)	396.19	C <sub>24</sub> H <sub>28</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Sinkiangenol A (21)	454.19	C <sub>26</sub> H <sub>30</sub> O <sub>7</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Sinkiangenol B (22)	412.18	C <sub>24</sub> H <sub>28</sub> O <sub>6</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
(3'S, 8'R, 9'S, 10'R)-Sinkianol A (23)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Gum resin	Xinjiang, China	[48]
Lehmannolol (24)	384.23	C <sub>24</sub> H <sub>32</sub> O <sub>4</sub>	Roots	Xin jiang Uygur Autonomous Region, China,	[30]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Lehmannolone (25)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	Xin jiang Uygur Autonomous Region, China,	[30]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
	-	-	Resin	Xinjiang, China	[25]
Kamolone (26)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
	-	-	Resin	Xinjiang, China	[25]
(3'S, 4'S, 5'R, 8'S, 9'S, 10'S)-Kamolol acetate (27)	426.24	C <sub>26</sub> H <sub>34</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Ferusingensine H (28)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Resin	Xinjiang, China	[25]
Monocyclic sesquiterpene coumarins					
Fekrynlol (29)	384.23	C <sub>24</sub> H <sub>32</sub> O <sub>4</sub>	Roots	Xinjiang, China	[19]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
	-	-	Resin	Xinjiang, China	[25]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Fekrynlol acetate (30)	426.24	C <sub>26</sub> H <sub>34</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
(8'S, 9'S, 10'S)-Propionyl fekrynlol (31)	440.25	C <sub>27</sub> H <sub>36</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Galbanic acid (32)	398.20	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Resin	Xinjiang Uygur Autonomous Region, China	[14]
Methyl galbanate (33)	412.22	C <sub>25</sub> H <sub>32</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Fekolone (34)	380.19	C <sub>24</sub> H <sub>28</sub> O <sub>4</sub>	Roots	Xinjiang, China	[19]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
Sinkianone (35)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	Xinjiang Uygur Autonomous Region, China,	[30]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
(3`R, 5`R, 10`R)-Sinkianol B (36)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Gum resin	Xinjiang, China	[48]
Fekrol (37)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Ferusingensine G (38)	396.19	C <sub>24</sub> H <sub>28</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Farnesiferol B (39)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	Xinjiang, China	[19]
	-	-	Resin	Xinjiang Uygur Autonomous Region, China	[14]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Farnesiferone B (40)	380.18	C <sub>24</sub> H <sub>28</sub> O <sub>4</sub>	Resin	Xinjiang, China	[25]
Farnesiferol C (41)	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	Xinjiang, China	[19]
	-	-	Resin	Xinjiang Uygur Autonomous Region, China	[14]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
	-	-	Resin	Xinjiang, China	[25]
Sinkiangenorin F (42)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[51]
8-O-Acetyl sinkiangenorin F (43)	442.23	C <sub>25</sub> H <sub>34</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[51]
Sinkiangenorin D (44)	384.23	C <sub>24</sub> H <sub>32</sub> O <sub>4</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50]
Sinkiangenorin E (45)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[52]
Ferusingensine F (46)	536.35	C <sub>34</sub> H <sub>48</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Sinkiangenol C (47)	398.20	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
2,3-Dihydro-7-hydroxy-2R*,3S*-dimethyl-2-[4-methyl-5-(4-methyl-2-furyl)-3(E)-pentenyl]-furo[3,2-c]coumarin ( <b>48</b> )	394.17	C <sub>24</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
2,3-Dihydro-7-hydroxy-2R*,3R*-dimethyl-2-[4-methyl-5-(4-methyl-2-furyl)-3(E)-pentenyl]-furo[3,2-c]coumarin ( <b>49</b> )	394.17	C <sub>24</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
2,3-Dihydro-7-hydroxy-2S,3R-dimethyl-2-[4,8-dimethyl-3(E),7-nonadienyl]-furo[3,2-c]coumarin ( <b>50</b> )	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	China	[40]
2,3-Dihydro-7-hydroxy-2R,3R-dimethyl-2-[4,8-dimethyl-3(E),7-nonadienyl]-furo[3,2-c]coumarin ( <b>51</b> )	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Roots	China	[40]
Acyclic sesquiterpene coumarins					
Umbelliprenin ( <b>52</b> )	366.21	C <sub>24</sub> H <sub>30</sub> O <sub>3</sub>	Resin	Xinjiang Uygur Autonomous Region, China	[14]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[50] [24]
	-	-	Resin	Xinjiang, China	[25]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
10R-Karatavicinol ( <b>53</b> )	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Resin	Xinjiang Uygur Autonomous Region, China	[14]
	-	-	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
12'-Hydroxy-karatavicinol ( <b>54</b> )	416.21	C <sub>24</sub> H <sub>32</sub> O <sub>6</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Karatavicinol A ( <b>55</b> )	440.25	C <sub>27</sub> H <sub>36</sub> O <sub>5</sub>	Resin	Xinjiang Uygur Autonomous Region, China	[14]
Ferusingensine A ( <b>56</b> )	426.24	C <sub>26</sub> H <sub>34</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Ferusingensine B ( <b>57</b> )	384.23	C <sub>24</sub> H <sub>32</sub> O <sub>4</sub>	Resin	Xinjiang, China	[25]
Ferusingensine C ( <b>58</b> )	550.36	C <sub>35</sub> H <sub>50</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Ferusingensine D ( <b>59</b> )	536.35	C <sub>34</sub> H <sub>48</sub> O <sub>5</sub>	Resin	Xinjiang, China	[25]
Ferusingensine E ( <b>60</b> )	382.21	C <sub>24</sub> H <sub>30</sub> O <sub>4</sub>	Resin	Xinjiang, China	[25]
Sesquiterpene chromones					
(+)-Ferulasin 2R, 3R, 10'R ( <b>61</b> )	398.20	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Roots	Purchased from the Yellow River medicinal materials market of Lanzhou, China	[40]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
(-)-Ferulasin 2S, 3S, 10'S (62)	398.20	C <sub>24</sub> H <sub>30</sub> O <sub>5</sub>	Roots	Purchased from the Yellow River medicinal materials market of Lanzhou, China	[40]
Acyclic monoterpene coumarins					
Ferusinkin A (63)	330.14	C <sub>19</sub> H <sub>22</sub> O <sub>5</sub>	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
Diversin (64)	312.13	C <sub>19</sub> H <sub>20</sub> O <sub>4</sub>	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
Auraptene (65)	312.13	C <sub>19</sub> H <sub>20</sub> O <sub>4</sub>	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
Coumarins					
Umbelliferone (66)	162.03	C <sub>9</sub> H <sub>6</sub> O <sub>3</sub>	Roots	Xinjiang, China	[19]
	-	-	Resin	Xinjiang Uygur Autonomous Region, China	[14]
	-	-	Seeds	Xinjiang, China	[27]
Herniarin (67)	176.04	C <sub>10</sub> H <sub>8</sub> O <sub>3</sub>	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
Sinkiangenol F (68)	312.09	C <sub>18</sub> H <sub>16</sub> O <sub>5</sub>	Resin	Baishitun mountain, Yili state, Xinjiang Uygur Autonomous, China	[39]
Sesquiterpene phenylpropanoids					
Sinkiangenone A (69)	576.30	C <sub>35</sub> H <sub>44</sub> O <sub>7</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Sinkiangenone B (70)	576.30	C <sub>35</sub> H <sub>44</sub> O <sub>7</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Ferulaeone A (71)	414.24	C <sub>25</sub> H <sub>34</sub> O <sub>5</sub>	Roots	China	[43]
Ferulaeone G (72)	518.30	C <sub>33</sub> H <sub>42</sub> O <sub>5</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Dshamirone (73)	356.23	C <sub>23</sub> H <sub>32</sub> O <sub>3</sub>	Roots	China	[40]
1-(2,4-Dihydroxyphenyl)-2-hydroxy-5,9,13-trimethyl-4(E),8(E),12-tetradecatrien-1-one (74)	372.23	C <sub>23</sub> H <sub>32</sub> O <sub>4</sub>	Roots	China	[40]
3S-(2,4-Dihydroxybenzoyl)-4R,5R-dimethyl-5-(4,8-dimethyl-3(E),7(E)-nonadien-1-yl)tetrahydro-2-furanone (75)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Roots	China	[40]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
Fukanedone B (76)	400.22	C <sub>24</sub> H <sub>32</sub> O <sub>5</sub>	Roots	China	[40]
Lignans					
Arctigenin (77)	372.15	C <sub>21</sub> H <sub>24</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]
Matairesinol (78)	420.21	C <sub>20</sub> H <sub>22</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
Secroisolariciresinol (79)	362.17	C <sub>20</sub> H <sub>26</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
	-	-	Seeds	Xinjiang, China	[27]
Lariciresinol (80)	360.15	C <sub>20</sub> H <sub>24</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
	-	-	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]
	-	-	Seeds	Xinjiang, China	[27]
(7,8-cis-8,8'-trans)-2-4-Dihydroxyl-3,5-dimethoxy-lariciresinol (81)	360.15	C <sub>20</sub> H <sub>24</sub> O <sub>6</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]
(+)-Ferulasinkin A (82) (7R, 8R, 7'R, 8'R)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(-)-Ferulasinkin A (83) (7S, 8S, 7'S, 8'S)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(+)-Ferulasinkin B (84) (7S, 8S, 7'R, 8'R)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(-)-Ferulasinkin B (85) (7R, 8R, 7'S, 8'S)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(+)-Ferulasinkin C (86) (7S, 8S, 7'R, 8'R)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(-)-Ferulasinkin C (87) (7R, 8R, 7'S, 8'R)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
(+)-Ferulasinkin D (88) (7R, 8S, 7'S, 8'S)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(-)-Ferulasinkin D (89) (7S, 8R, 7'R, 8'R)	362.13	C <sub>19</sub> H <sub>22</sub> O <sub>7</sub>	Resin	Purchased from Huangyadai Pharmaceutical Co., Ltd., Yunnan, China	[35]
(+)-Sinkianlignan A (90) (7'S, 8'R)	518.18	C <sub>30</sub> H <sub>30</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan A (91) (7'R, 8'S)	518.19	C <sub>30</sub> H <sub>30</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan B (92) (7S, 8S, 7'S, 8'R)	552.19	C <sub>30</sub> H <sub>32</sub> O <sub>10</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan B (93) (7R, 8R, 7'R, 8'S)	552.19	C <sub>30</sub> H <sub>32</sub> O <sub>10</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan C (94) (7R, 8R, 9S, 7'R)	524.24	C <sub>30</sub> H <sub>36</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan C (95) (7S, 8S, 9R, 7'S)	524.24	C <sub>30</sub> H <sub>36</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan D (96) (7S, 8R, 9'S)	430.16	C <sub>23</sub> H <sub>26</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan D (97) (7R, 8S, 9'R)	430.16	C <sub>23</sub> H <sub>26</sub> O <sub>8</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan E (98) (7S, 8S)	358.17	C <sub>21</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan E (99) (7R, 8R)	358.17	C <sub>21</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan F (100) (7R, 8S)	358.17	C <sub>21</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(-)-Sinkianlignan F (101) (7S, 8R)	358.17	C <sub>21</sub> H <sub>26</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[44]
(+)-Sinkianlignan G (102) (7R, 8S, 7'R, 8'S)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
(-)-Sinkianlignan G ( <b>103</b> ) (7S, 8R, 7'S, 8'R)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(+)-Sinkianlignan H ( <b>104</b> ) (7S, 8R, 7'R, 8'R)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(-)-Sinkianlignan H ( <b>105</b> ) (7R, 8S, 7'S, 8'S)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(+)-Sinkianlignan I ( <b>106</b> ) (7R, 8R, 7'S, 8'S)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(-)-Sinkianlignan I ( <b>107</b> ) (7S, 8S, 7'R, 8'R)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(+)-Sinkianlignan J ( <b>108</b> ) (7R, 8R, 7'R, 8'R)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(-)-Sinkianlignan J ( <b>109</b> ) (7S, 8S, 7'S, 8'S)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(+)-Sinkianlignan K ( <b>110</b> ) (7R, 8S, 7'S, 8'R)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(-)-Sinkianlignan K ( <b>111</b> ) (7S, 8S, 7'R, 8'S)	376.15	C <sub>20</sub> H <sub>24</sub> O <sub>7</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
Neoarctiin A ( <b>112</b> )	742.29	C <sub>42</sub> H <sub>46</sub> O <sub>12</sub>	Seeds	Xinjiang, China	[27]
Pinoresinol ( <b>113</b> )	358.14	C <sub>20</sub> H <sub>22</sub> O <sub>6</sub>	Seeds	Xinjiang, China	[27]
Arctiin ( <b>114</b> )	534.21	C <sub>27</sub> H <sub>34</sub> O <sub>11</sub>	Seeds	Xinjiang, China	[27]
Monoterpenes					
Carene ( <b>115</b> )	136.12	C <sub>10</sub> H <sub>16</sub>	Oleo-gum resin	Xinjiang, China	[8]
Camphene ( <b>116</b> )	136.12	C <sub>10</sub> H <sub>16</sub>	Oleo-gum resin	Xinjiang, China	[8]
β-Pinene ( <b>117</b> )	136.12	C <sub>10</sub> H <sub>16</sub>	Oleo-gum resin	Xinjiang, China	[8]
α- Pinene ( <b>118</b> )	136.12	C <sub>10</sub> H <sub>16</sub>	Oleo-gum resin	Xinjiang, China	[8]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
p-Cymene ( <b>119</b> )	134.10	C <sub>10</sub> H <sub>14</sub>	Oleo-gum resin	Xinjiang, China	[8]
Sesquiterpenes					
Nerolidol ( <b>120</b> )	222.19	C <sub>15</sub> H <sub>26</sub> O	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
(3S,E)-Nerolidol ( <b>121</b> )	222.19	C <sub>15</sub> H <sub>26</sub> O	Roots	China	[40]
Guaiol ( <b>122</b> )	222.19	C <sub>15</sub> H <sub>26</sub> O	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
	-	-	Roots	China	[40]
Brevifolliol ( <b>123</b> )	556.26	C <sub>31</sub> H <sub>40</sub> O <sub>9</sub>	Seeds	Xinjiang, China	[27]
Fercoperol ( <b>124</b> )	270.18	C <sub>15</sub> H <sub>26</sub> O <sub>4</sub>	Roots	China	[40]
iso-Fercoperol ( <b>125</b> )	270.18	C <sub>15</sub> H <sub>26</sub> O <sub>4</sub>	Roots	China	[40]
Sulfanes					
1-(sec-Butyl)-2-methyldisulfane ( <b>126</b> )	136.03	C <sub>5</sub> H <sub>12</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(sec-Butyl)-2-ethyldisulfane ( <b>127</b> )	150.05	C <sub>6</sub> H <sub>14</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(sec-Butyl)-2-vinyldisulfane ( <b>128</b> )	148.03	C <sub>6</sub> H <sub>12</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-Butyl-2-ethyldisulfane ( <b>129</b> )	150.05	C <sub>6</sub> H <sub>14</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
1,3-Dimethyltrisulfane ( <b>130</b> )	125.96	C <sub>2</sub> H <sub>6</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(sec-Butyl)-2-isopropyldisulfane ( <b>131</b> )	164.06	C <sub>7</sub> H <sub>16</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
1,2-di-sec-Butyldisulfane ( <b>132</b> )	178.08	C <sub>8</sub> H <sub>18</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
(Z)-1-(sec-Butyl)-2-(prop-1-en-1-yl)disulfane ( <b>133</b> )	162.05	C <sub>7</sub> H <sub>14</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
	-	-	Resin	Xin Jiang, China	[60]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
(Z)-1-(But-1-en-1-yl)-2-(sec-butyl)disulfane ( <b>134</b> )	176.06	C <sub>8</sub> H <sub>16</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
(E)-1-(But-1-en-1-yl)-2-(sec-butyl)disulfane ( <b>135</b> )	176.06	C <sub>8</sub> H <sub>16</sub> S <sub>2</sub>	Oleo-gum resin	Xinjiang, China	[8]
	-	-	Resin	Xin Jiang, China	[60]
1,3-di-sec-Butyltrisulfane ( <b>136</b> )	210.05	C <sub>8</sub> H <sub>18</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(E)-1-(sec-Butyl)-3-(prop-1-en-1-yl)trisulfane ( <b>137</b> )	194.02	C <sub>7</sub> H <sub>14</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(2-(Isopropylthio)ethyl)-2-methyldisulfane ( <b>138</b> )	182.02	C <sub>6</sub> H <sub>14</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(3-(Isopropylthio)propyl)-2-methyldisulfane ( <b>139</b> )	196.04	C <sub>7</sub> H <sub>16</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(Z)-1-(3-(Isopropylthio)prop-1-en-1-yl)-2-methyldisulfane ( <b>140</b> )	194.02	C <sub>7</sub> H <sub>14</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(E)-1-(2-(Isopropylthio)vinyl)-2-methyldisulfane ( <b>141</b> )	180.01	C <sub>6</sub> H <sub>12</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(2-(sec-Butylthio)ethyl)-2-methyldisulfane ( <b>142</b> )	196.04	C <sub>7</sub> H <sub>16</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-(3-(sec-Butylthio)propyl)-2-methyldisulfane ( <b>143</b> )	210.05	C <sub>8</sub> H <sub>18</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(E)-1-Methyl-2-(2-(propylthio)vinyl)disulfane ( <b>144</b> )	180.01	C <sub>6</sub> H <sub>12</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(Z)-1-(3-(sec-Butylthio)prop-1-en-1-yl)-2-methyldisulfane ( <b>145</b> )	208.04	C <sub>8</sub> H <sub>16</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
(Z)-1-(2-(sec-butylthio)vinyl)-2-methyldisulfane ( <b>146</b> )	194.02	C <sub>7</sub> H <sub>14</sub> S <sub>3</sub>	Oleo-gum resin	Xinjiang, China	[8]
1-Methyl-2-((E)-2-(((E)-prop-1-en-1-yl)disulfanyl)vinyl)disulfane ( <b>147</b> )	209.96	C <sub>6</sub> H <sub>10</sub> S <sub>4</sub>	Oleo-gum resin	Xinjiang, China	[8]
Steroids					

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
Sinkiangenrin A (148)	420.21	C <sub>23</sub> H <sub>32</sub> O <sub>7</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
Sinkiangenrin B (149)	418.19	C <sub>23</sub> H <sub>30</sub> O <sub>7</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
β-Sitosterol (150)	414.38	C <sub>29</sub> H <sub>50</sub> O	Seeds	Xinjiang, China	[27]
Stigmasterol (151)	412.37	C <sub>29</sub> H <sub>48</sub> O	Seeds	Xinjiang, China	[27]
Daucosterol (152)	576.43	C <sub>35</sub> H <sub>60</sub> O <sub>6</sub>	Seeds	Xinjiang, China	[27]
Stigmasterol-3-O-β-D-glucoside (153)	574.42	C <sub>35</sub> H <sub>58</sub> O <sub>6</sub>	Seeds	Xinjiang, China	[27]
Phenolic compounds					
Quercetin (154)	302.04	C <sub>15</sub> H <sub>10</sub> O <sub>7</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]
Isoquercitrin (155)	464.09	C <sub>21</sub> H <sub>20</sub> O <sub>12</sub>	Seeds	Xinjiang, China	[27]
Rutin (156)	610.15	C <sub>27</sub> H <sub>30</sub> O <sub>16</sub>	Seeds	Xinjiang, China	[27]
Luteolin-7-O-β-D-glucuronide (157)	462.07	C <sub>21</sub> H <sub>18</sub> O <sub>12</sub>	Seeds	Xinjiang, China	[27]
Ferulic acid (158)	194.05	C <sub>10</sub> H <sub>10</sub> O <sub>4</sub>	Seeds	Xinjiang, China	[27]
			Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
	-	-	Aerial parts	Yili state, Xinjiang Uygur Autonomous Region, China	[41]
	-	-	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
Caffeic acid (159)	180.04	C <sub>9</sub> H <sub>8</sub> O <sub>4</sub>	Seeds	Xinjiang, China	[27]
Chlorogenic acid (160)	354.09	C <sub>16</sub> H <sub>18</sub> O <sub>9</sub>	Seeds	Xinjiang, China	[27]
Methyl chlorogenate (161)	368.11	C <sub>17</sub> H <sub>20</sub> O <sub>9</sub>	Seeds	Xinjiang, China	[27]
1,5-di-O-Caffeoylquinic (162)	516.12	C <sub>25</sub> H <sub>24</sub> O <sub>12</sub>	Seeds	Xinjiang, China	[27]
P-Hydroxycinnamic acid (163)	164.04	C <sub>9</sub> H <sub>8</sub> O <sub>3</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
3',4'-Dimethoxy cinnamyl isovalent (164)	278.15	C <sub>16</sub> H <sub>22</sub> O <sub>4</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Vanillic acid (165)	168.04	C <sub>8</sub> H <sub>8</sub> O <sub>4</sub>	Seeds	Xinjiang, China	[27]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
Vanillin ( <b>166</b> )	152.04	C <sub>8</sub> H <sub>8</sub> O <sub>3</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Coniferaldehyde = Ferulaldehyde ( <b>167</b> )	178.06	C <sub>10</sub> H <sub>10</sub> O <sub>3</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
	-	-	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
(2E)-3-(4-Ethoxy-3-methoxyphenyl)prop-2-en-1-ol ( <b>168</b> )	208.10	C <sub>12</sub> H <sub>16</sub> O <sub>3</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
(7S,8R)-Guaiacyl glycerol ( <b>169</b> )	214.08	C <sub>10</sub> H <sub>14</sub> O <sub>5</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
(7S,8S)-Guaiacyl glycerol ( <b>170</b> )	214.08	C <sub>10</sub> H <sub>14</sub> O <sub>5</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
3',4'-dimethoxycinnamyl alcohol ( <b>171</b> )	194.09	C <sub>11</sub> H <sub>14</sub> O <sub>3</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
4-[(E)-3-ethoxyprop-1-enyl]-2-methoxy phenol ( <b>172</b> )	208.10	C <sub>12</sub> H <sub>16</sub> O <sub>3</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
Brachangobinan E ( <b>173</b> )	312.15	C <sub>16</sub> H <sub>24</sub> O <sub>6</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
4,4'-Dihydroxy-3,3'-dimethoxy-trans-stilbene ( <b>174</b> )	272.10	C <sub>16</sub> H <sub>16</sub> O <sub>4</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
3,3'-Dimethoxy-4,4'-dioxychalcone ( <b>175</b> )	300.09	C <sub>17</sub> H <sub>16</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
Ferulagenol A ( <b>176</b> )	290.11	C <sub>16</sub> H <sub>18</sub> O <sub>5</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
4-Hydroxy-3-methoxyphenylterulic acid ( <b>177</b> )	316.09	C <sub>17</sub> H <sub>16</sub> O <sub>6</sub>	Resin	Kashgar, Xinjiang Uyghur Autonomous Region, China	[18]
Macrathoin F ( <b>178</b> )	530.14	C <sub>26</sub> H <sub>26</sub> O <sub>12</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[24]
	-	-	Seeds	Xinjiang, China	[27]
Sinkiangenone C ( <b>179</b> )	390.13	C <sub>20</sub> H <sub>22</sub> O <sub>8</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]

Compound Name/Chemical class	Mol. Wt.	Mol. Formula	Plant part	Location/Source	Ref.
Sinkiangenone D ( <b>180</b> )	390.13	C <sub>20</sub> H <sub>22</sub> O <sub>8</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
3-(3,4-Dimethoxyphenyl)-2-propen-1-yl ester ( <b>181</b> )	370.14	C <sub>21</sub> H <sub>22</sub> O <sub>6</sub>	Resin	Yili state, Xinjiang Uygur Autonomous Region, China	[29]
Other metabolites					
Sinkiangensis A ( <b>182</b> )	282.14	C <sub>15</sub> H <sub>22</sub> O <sub>5</sub>	Resin	Yining, Xinjiang, China	[46]
Sinkiangensis B ( <b>183</b> )	324.15	C <sub>17</sub> H <sub>24</sub> O <sub>6</sub>	Resin	Yining, Xinjiang, China	[46]
Sinkiangensis C ( <b>184</b> )	240.09	C <sub>12</sub> H <sub>16</sub> O <sub>5</sub>	Resin	Yining, Xinjiang, China	[46]
5-Hydroxymethyl fufural ( <b>185</b> )	126.03	C <sub>6</sub> H <sub>6</sub> O <sub>3</sub>	Seeds	Xinjiang, China	[27]
Variecolorquinone A ( <b>186</b> )	402.09	C <sub>20</sub> H <sub>18</sub> O <sub>9</sub>	Seeds	Xinjiang, China	[27]
1-(3-Ethylphenyl)-1,2-ethanediol ( <b>187</b> )	166.09	C <sub>10</sub> H <sub>14</sub> O <sub>2</sub>	Seeds	Xinjiang, China	[27]
Sucrose ( <b>188</b> )	342.11	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub>	Seeds	Xinjiang, China	[27]
Inosine ( <b>189</b> )	268.08	C <sub>10</sub> H <sub>12</sub> N <sub>4</sub> O <sub>5</sub>	Seeds	Xinjiang, China	[27]
Uridine ( <b>190</b> )	244.06	C <sub>9</sub> H <sub>12</sub> N <sub>2</sub> O <sub>6</sub>	Seeds	Xinjiang, China	[27]
(R)-2'-hydroxy-N-[(2S,3S,4R)-1,3,4-trihydroxyhexacosan-2-yl] nonadanamide ( <b>191</b> )	585.53	C <sub>35</sub> H <sub>71</sub> NO <sub>5</sub>	Seeds	Xinjiang, China	[27]
Sinkiangenrin C ( <b>192</b> )	338.15	C <sub>14</sub> H <sub>26</sub> O <sub>9</sub>	Seeds	Yili state, Xinjiang Uygur Autonomous Region, China	[17]
Butanedioic acid ( <b>193</b> )	118.02	C <sub>4</sub> H <sub>6</sub> O <sub>4</sub>	Seeds	Xinjiang, China	[27]
n-Hexacosanol ( <b>194</b> )	382.41	C <sub>26</sub> H <sub>54</sub> O	Seeds	Xinjiang, China	[27]

## References

- [8] Zhi-da, M.; Qi-fi, M.; Mizuno, M.; Tanaka, T.; Iinuma, M. Polysulfanes in the volatile oils of *Ferula* species. *Planta Med.* **1987**, *53*, 300-302.
- [13] Sattar, Z.; Iranshahi, M. Phytochemistry and pharmacology of *Ferula hermonis* Boiss.—A review. *Drug Res.* **2017**, *67*, 437-446.
- [14] Teng, L.; Ma, G.Z.; Li, L.; Ma, L.Y.; Xu, X.Q. Karatavicinol a, a new anti-ulcer sesquiterpene coumarin from *Ferula Sinkiangensis*. *Chem. Nat. Compd.* **2013**, *49*, 606-609.
- [17] Li, G.; Li, X.; Cao, L.; Shen, L.; Zhu, J.; Zhang, J.; Wang, J.; Zhang, L.; Si, J. Steroidal esters from *Ferula sinkiangensis*. *Fitoterapia* **2014**, *97*, 247-252.
- [18] Yan, Y.; Bao, X.; Li, Y.; Li, Q.; Cheng, Y.; Jiao, Y.; Zhang, H. Racemic Norneolignans from the resin of *Ferula sinkiangensis* and their Cox-2 inhibitory activity. *Fitoterapia* **2023**, *164*, 105341.
- [19] Yang, J.; Jing, S.; Li, Z.; Qin, H. Chemical constituents from roots of *Ferula sinkiangensis*. *Zhongguo Zhong Yao Za Zhi* **2007**, *32*, 2382-2384.
- [24] Zhang, L.; Si, J.; Li, G.; Li, X.; Zhang, L.; Gao, L.; Huo, X.; Liu, D.; Sun, X.; Cao, L. Umbelliprenin and lariciresinol isolated from a long-term-used herb medicine *Ferula sinkiangensis* induce apoptosis and G0/G1 arresting in gastric cancer cells. *RSC Adv.* **2015**, *5*, 91006-91017.
- [25] Guo, T.; Zhou, D.; Yang, Y.; Zhang, X.; Chen, G.; Lin, B.; Sun, Y.; Ni, H.; Liu, J.; Hou, Y. Bioactive sesquiterpene coumarins from the resin of *Ferula sinkiangensis* targeted on over-activation of microglia. *Bioorg. Chem.* **2020**, *104*, 104338.
- [27] Li, G. Chemical constituents from seeds of *Ferula sinkiangensis*. *Chin. Tradit. Herb. Drugs.* **2015**, 1730-1736.
- [29] Wang, J.; Gao, Y.; Wang, H.; Chen, L.; Cao, L.; Xu, J.; Li, X.; Zhao, Y.; Zhu, J.; Si, J. Apoptosis induction and cell cycle arrest induced by sinkiangenone B, a novel phenylpropanoid derivative from the resin of *Ferula sinkiangensis* KM Shen. *RSC Adv.* **2018**, *8*, 4093-4103.
- [30] Yang, J.; An, Z.; Li, Z.; Jing, S.; Qina, H. Sesquiterpene coumarins from the roots of *Ferula sinkiangensis* and *Ferula teterrima*. *Chem. Pharm. Bull.* **2006**, *54*, 1595-1598.
- [35] Li, Y.; Yang, B.; Zheng, S.; Cheng, Y.; Cui, H. Racemic norlignans as diastereoisomers from *Ferula sinkiangensis* resins with antitumor and wound-healing promotion activities. *Molecules* **2022**, *27*, 3907.
- [39] Wang, J.; Wang, H.; Zhang, M.; Li, X.; Zhao, Y.; Chen, G.; Si, J.; Jiang, L. Sesquiterpene coumarins from *Ferula sinkiangensis* KM Shen and their cytotoxic activities. *Phytochemistry* **2020**, *180*, 112531.
- [40] Wang, J.; Meng, X.; Zheng, Y.; Sang, C.; Wang, W.; Ma, J.; Zhao, Y.; Yang, J. (±)-Ferulasin, unusual sesquiterpene chromones from *Ferula sinkiangensis*. *Tetrahedron* **2022**, *122*, 132953.
- [41] Liu, T.; Wang, L.; Zhang, L.; Jiang, H.; Zhang, Y.; Mao, L. Insecticidal, cytotoxic and anti-phytopathogenic fungal activities of chemical constituents from the aerial parts of *Ferula sinkiangensis*. *Nat. Prod. Res.* **2020**, *34*, 1430-1436.
- [43] Wang, J.; Zhao, Y.; Qiang, Y. Chemical constituents from *Ferula sinkiangensis* and their chemotaxonomic significance. *Biochem. Syst. Ecol.* **2022**, *105*, 104519.
- [44] Li, Q.; Li, J.; Bao, X.; Zhang, S.; Luo, Q.; Li, K.; Jiao, Y.; Cheng, Y.; Yan, Y. Unusual sesquillignans with anti-inflammatory activities from the resin of *Ferula sinkiangensis*. *Bioorg. Chem.* **2022**, *127*, 105986.
- [46] Yi, X.; Li, Z.; Zheng, Q.; Sang, R.; Li, H.; Gao, G.; Qin, Q.; Zhu, N. Three new tetrahydrobenzofuran derivatives from *Ferula sinkiangensis* KM shen and their cytotoxic activities. *Nat. Prod. Res.* **2022**, 1-5. doi: 10.1080/14786419.2022.2075361.
- [48] Xing, Y.; Li, N.; Zhou, D.; Chen, G.; Jiao, K.; Wang, W.; Si, Y.; Hou, Y. Sesquiterpene coumarins from *Ferula sinkiangensis* act as neuroinflammation inhibitors. *Planta Med.* **2017**, *83*, 135-142.
- [50] Li, G.; Wang, J.; Li, X.; Cao, L.; Gao, L.; Lv, N.; Si, J. An unusual sesquiterpene coumarin from the seeds of *Ferula sinkiangensis*. *J. Asian Nat. Prod. Res.* **2016**, *18*, 891-896.
- [51] Li, G.; Li, X.; Cao, L.; Zhang, L.; Shen, L.; Zhu, J.; Wang, J.; Si, J. Sesquiterpene coumarins from seeds of *Ferula sinkiangensis*. *Fitoterapia* **2015**, *103*, 222-226.

- 
- [52] Li, G.; Wang, J.; Li, X.; Cao, L.; Lv, N.; Chen, G.; Zhu, J.; Si, J. Two New sesquiterpene coumarins from the seeds of *Ferula sinkiangensis*. *Phytochem. Lett.* **2015**, *13*, 123–126.
- [60] Ye, B.; Wang, S.; Zhang, L. Studies on the detoxification effects and acute toxicity of a mixture of cis-sec-butyl-1-propoenyl disulphide and trans-sec-butyl-1-propoenyl disulphide isolated from crude essential oil of *Ferula sinkiangensis* KM Shen, a Chinese traditional herbal medicine. *Nat. Prod. Res.* **2011**, *25*, 1161–1170.