**Table 2.**The structure of corynantheine-strychnine alkaloids.

akuammiline alkaloids



|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | R5 | R6 | *N*4 | C19 |
| 1 | Scholarisin I | *α*-OCH3 | H | CHO | H | H | H |  | *E* |
| 2 | ScholarisinⅡ | *α*-OCH3 | H | CH2OH | H | H | H |  | *E* |
| 3 | ScholarisinⅢ | *α*-OCH3 | H | CH2OAc | H | H | H |  | *E* |
| 4 | (3*R*,5*S*,7*R*,15*R*,16*R*,19*E*)-scholarisine F | *α*-OCH3 | H | H | H | H | H |  | *E* |
| 5 | Picraline | H | COOCH3 | COOCH3 | H | H | H |  | *E* |
| 6 | Melosline C | *α*-OH | H | COOCH3 | H | H | H |  | *E* |
| 7 | Deacetyldeformopicraline | *α*-H | H | COOCH3 | H | H | H |  | *E* |
| 8 | Melosline D | *α*-H | CH2OH | COOCH3 | H | H | COCH3 |  | *E* |
| 9 | Picralinal | *α*-H | *β*-CHO | COOCH3 | H | H | H |  | *E* |
| 10 | *N*1-methoxymethyl picrinine | *α*-H | H | COOCH3 | H | H | CH2OCH3 |  | *E* |
| 11 | Picrinine | H | H | COOCH3 | H | H | H |  | E |
| 12 | Alstiphyllanine F | *α*-H | S1 | COOCH3 | OCH3 | H | H |  | *E* |
| 13 | Alstiphyllanine G | *α*-H | CH2OH | COOCH3 | OCH3 | H | CH3 |  | *E* |
| 14 | Alstiphyllanine D | *α*-H |  | COOCH3 | OCH3 | H | CH3 |  | *E* |
| 15 | 10-methoxy-*N1*-methyl-burnamine-17-*O*-veratrate | *α*-H |  | COOCH3 | OCH3 | H | CH3 |  | *E* |
| 16 | Quaternine | α-H | H | COOCH3 | OCH3 | OCH3 | H |  | *E* |
| 17 | Burnamine-17-*O*-3',4',5'-trimethoxybenzoate | *α*-H |  | COOCH3 | H | H | H |  | *Z* |
| 18 | Alstiphyllanine B | *α*-H |  | COOCH3 | OCH3 | H | CH3 | *N*4-oxide | *E* |
| 19 | Alstiphyllanine C | *α*-H |  | COOCH3 | OCH3 | H | CH3 | *N*4-oxide | *E* |
| 20 | Alstiphyllanine E | *α*-H |  | COOCH3 | H | H | H |  | *E* |
| 21 | Ddesacetylpicraline | H | CH2OH | COOCH3 | H | H | H |  | *E* |
| 22 | Pikralinal | H | CHO | COOCH3 | H | H | H |  | *E* |



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | R5 | *N*4 |
| 26 | ScholarisinⅥ | *α*-OH | α-H | COOCH3 | H | CH3 |  |
| 27 | 3-epi-dihydrocorymine | *α*-OH | CH2OH | COOCH3 | H | CH3 |  |
| 28 | *N*4-demthylechitamine | *α*-OH | CH2OH | COOCH3 | H | H |  |
| 29 | 17-formyl-10-demethoxyvincorine *N4*-oxide | H | CHO | COOCH3 | H | CH3 | *N*4-oxide |
| 30 | 10-demethoxyvincorine *N4*-oxide | H | H | COOCH3 | H | CH3 | *N*4*-*oxide |
| 31 | 17-*O*-acetyl-*N*b-demethylechitamine | *α*-OH | CH2OAc | COOCH3 | H | H |  |
| 32 | *N*b-demethylechitamine | *α*-OH | CH2OH | COOCH3 | H | H |  |
| 33 | Echitaminic acid | *α*-OH | CH2OH | COO- | H | H | *N*4-CH3 |
| 34 | Vincorine | H | H | *α*-COOCH3 | OCH3 | CH3 |  |



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | *N*4 |
| 38 | ScholarisinⅦ | CH2OH | *α*-OCH3 | H | H |  |
| 39 | (*E*)-16-formyl-5α-methoxystrictamine | CHO | α-OCH3 | H | H |  |
| 40 | Alstopenidine H | H | H | H | OCH3 | *N*4-oxide |
| 41 | 5α-methoxystrictamine | H | *α*-OCH3 | H | H |  |
| 42 | 11-methoxystrictamine | H | H | H | OCH3 |  |
| 43 | Strictamine | H | H | H | H |  |
| 44 | 11-hydroxystrictamine | H | H | H | OH |  |



|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | R5 | *N*4 |
| 45 | 10-methoxycathafoline *N4*-oxide | CH3 | COOCH3 | OCH3 | H | CH3 | *N*4-oxide |
| 46 | 18-hydroxycabucraline. | CH3 | COOCH3 | H | OCH3 | CH2OH |  |
| 47 | Cabucraline | CH3 | COOCH3 | H | OCH3 | CH3 |  |
| 48 | Cathafoline *N*4-oxide | H | *α*-COOCH3 | H | H | CH3 | *N*4-oxide |
| 49 | Cathafoline | H | *α*-COOCH3 | H | H | CH3 |  |
| 50 | 10-methoxycathafoline | CH3 | *α*-COOCH3 | OCH3 | H | CH3 |  |



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | C19 |
| 53 | Nareline methyl ether | H | OCH3 | H | H | *Z* |
| 54 | Nareline ethyl ether | H | OCH2CH3 | H | H | *Z* |
| 55 | 5-*epi*-nareline ethyl ether | OCH2CH3 | H | H | H | *Z* |
| 56 | 10,11-dimethoxynareline | H | OH | OCH3 | OCH3 | *E* |
| 57 | Scholarisine S | *β*-OH | H | H | H | *Z* |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | C19 |
| 58 | Vallesamin | *α*-OCH3 | *β*-OH | *Z* |
| 59 | 19,20-(*E)*-vallesamine | *α*-OCH3 | *β*-OH | *E* |
| 60 | 19*Z*-vallesamine | *β*-OCH3 | *α*-OH | *Z* |



corynantheine alkaloids



strychnine and yohimbine alkaloids



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | *N*4 |
| 113 | Alstolucine B | *α*-H | *α*-H | H |  |
| 114 | Alstolucine C | *α*-H | *α*-H | H | *N*4-oxide |
| 115 | Alstolucine D | *α*-H | *α*-H | OH |  |
| 116 | Alstolucine E | α-H | *β*-H | OH |  |
| 117 | Alstolucine F | α-H | *β*-H | H |  |
| 118 | Alstomairine A | *β*-H | *β*-H | OCH3 | *N*4-oxide |
| 119 | Alstomairine B | *β*-H | *β*-H | OCH3 | *N*4-CH3 |
| 120 | Alstomairine C | *α*-H | *β*-H | OH | *N*4-CH3 |
| 121 | Alpneumine A | *β*-H | *β*-H | OH | *N*4-oxide |
| 122 | Alpneumine B | *β*-H | *β*-H | OH |  |
| 123 | Alpneumine C | *β*-H | *β*-H | H | *N*4-oxide |
| 124 | Alpneumine D | *β*-H | *α*-H | OH |  |
| 125 | Alpneumine E | *β*-H | *α*-H | H |  |
| 126 | Lagumicine | *α*-H | *α*-OH | H |  |



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | R5 | R6 | *N*4 |
| 131 | Vinervine | *β*-H | CH3 | H | *α*-H | H | OH |  |
| 132 | Akuammicine *N*-oxide | *α*-H | CH3 | H | *β*-H | H | H | *N*4-oxide |
| 133 | 11-methyoxy-akuammicine | OCH3 | CH3 | H | *β*-H | OCH3 | H |  |
| 134 | Akuammicine | H | CH3 | H | *β*-H | H | H |  |





|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | R5 | R6 |
| 149 | Alloyohimbine | *α*-H | *α*-COOCH3 | *α*-OH | *α*-H | H | H |
| 150 | Pseudoyohimbine | *β*-H | *α*-COOCH3 | *α*-OH | *β*-H | H | H |
| 151 | Venenatine | *β*-H | COOCH3 | *β*-OH | *α*-H | H | OCH3 |
| 152 | Venenatic acid | *α*-H | COOH | *β*-OH | *α*-H | H | OCH3 |
| 153 | Isovenenatine | *α*-H | COOCH3 | *β*-OH | *α*-H | H | OCH3 |
| 154 | Venenatyl alcohol | α-H | CH2OH | *β*-OH | *α*-H | H | OCH3 |
| 155 | Alstovenine | *α*-H | *β*-COOCH3 | *β*-OMe | *α*-H | H | OCH3 |
| 156 | *β*-yohimbine | *α*-H | *α*-COOCH3 | *β*-OH | *β*-H | H | H |
| 157 | *α*-yohimbine | *α*-H | *β*-COOCH3 | *α*-OH | *α*-H | H | H |

**Table 3.** The structure of sarpagine, macroline, and ajmaline alkaloids.

sarpagine alkaloids



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | R3 | R4 | *C19* |
| 158 | Lochnerine | H | H | *α*-CH2OH | OCH3 | *E* |
| 159 | Vellosimine | CH3 | H | *α-*CHO | H | *E* |
| 160 | Sarpagine | H | H | *α*-CH2OH | OH | *E* |
| 161 | Akuammidine | H | *α*-CH2OH | COOCH3 | H | *E* |
| 162 | 10-methoxyaffinisine | CH3 | CH2OH | *β*-H | OCH3 | *E* |
| 163 | Affinisine | CH3 | CH2OH | *β*-H | H | *E* |
| 164 | Normacusine B | H | CH2OH | H | H | *Z* |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Compound | R1 | R2 | *N*4 |
| 167 | Alstopenidine C | H | OCH3 |  |
| 168 | Alstopenidine D | OCH3 | OCH3 |  |
| 169 | Alstopenidine E | OCH3 | OCH3 | *N*4-oxide |



|  |  |  |  |
| --- | --- | --- | --- |
| No. | Ccompound | R1 | R2 |
| 172 | Alstomutinine C | *β*-OCH3 | CH3 |
| 173 | Alstomutinine D | OH | H |
| 174 | Talpinine oxindole | *β*-CH3 | H |

ajmaline alkaloids





|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | compound | R1 | R2 | R3 | R4 | *N*4 |
| 184 | 10-methoxyvincamajine | CH3 | COOCH3 | *α*-O H | OCH3 |  |
| 185 | Vincamedine | CH3 | COOCH3 | COOCH3 | H |  |
| 186 | Vincamajine-17-*O*-veratrate | CH3 | COOCH3 |  | H |  |
| 187 | Vincamajine-17-*O*-3’,4’,5’-trimethoxybenzoate | CH3 | COOCH3 |  | H |  |
| 188 | AlstiphyllanineH | CH3 | COOCH3 | OH | H | *N*4-oxide |
| 189 | Rauvomitin | CH3 | *β*-H |  | H |  |
| 190 | Vincamaginine A |  | COOCH3 |  | H |  |
| 191 | Vincamajine | CH3 | COOCH3 | *α*-OH | H |  |
| 192 | Quebrachidine | H | COOCH3 | *α*-OH | H |  |
| 193 | Alstiphyllanine I |  | COOCH3 | OAc | H |  |
| 194 | Alstiphyllanine J |  | COOCH3 | OAc | H |  |
| 195 | Alstiphyllanine K | Bz | COOCH3 | OAc | H |  |
| 196 | Alstiphyllanine L |  | COOCH3 | OH | H |  |
| 197 | Alstiphyllanine N | Bz | COOCH3 | OH | H |  |
| 198 | Alstiphyllanine M |  | COOCH3 | OH | H |  |
| 199 | Alstiphyllanine O |  | COOCH3 | OH | H |  |
| 200 | 17-formyl-10-demethoxyvincorine *N*4-oxide | CH3 | COOCH3 | OH | OCH3 | *N*4-oxide |
| 201 | 4'-hydroxy-3',5'-di-methoxybenzoylvincamajine | CH3 | COOCH3 |  | H |  |

macroline alkaloids

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | compound | R1 | R2 | R3 | R4 | R5 |
| 202 | *N*1-demethylalstophylline | COCH3 | H | OCH3 | H | CH3 |
| 203 | *N1*-demethylalstophyllal | CHO | CH3 | OCH3 | H | CH3 |
| 204 | Alstonerinal | CHO | CH3 | H | CH3 | CH3 |
| 205 | Alstomutinine A | COCH3 | H | H | CH2OH | CH3 |
| 206 | Alstomutinine B | CHO | CH3 | H | CH2OH | CH3 |
| 207 | *N*4-demethylalstonerine | COCH3 | H | H | CH3 | H |
| 208 | *N*4-demethylalstonerinal | CHO | Me | H | CH3 | H |
| 209 | Alstonerine | COCH3 | H | H | CH3 | CH3 |





|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | compound | R1 | R2 | R3 | R4 |
| 217 | Macrocarpine B | *α*-CH2OH | *β*- CH3 | *β*-H | H |
| 218 | Macrocarpine C | *α*-CH2OAc | *β*-CH3 | *β*-H | CH3 |
| 219 | Macrocarpine A | *β-*CH2OH | *β*-CH3 | *β*-H | CH3 |
| 220 | Talcarpine | CHO | CH3 | *β*-H | CH3 |



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | compound | R1 | R2 | R3 | R4 | R5 |
| 224 | 16-hydroxyalstonisine | H | COCH3 | H | *α*-OH | CH3 |
| 225 | 16-hydroxyalstonal | CH3 | CHO | H | *α*-OH | CH3 |
| 226 | 16-hydroxy-*N*4-demethylalstophylline oxindole | CH3 | CHO | OCH3 | *α*-OH | CH3 |
| 227 | 16-hydroxy-*N*4-demethylalstophyllal oxindole | H | COCH3 | OCH3 | *α*-OH | CH3 |
| 229 | *N*4-demethylalstophylline oxindole | H | COCH3 | OCH3 | *α*-H | CH3 |
| 230 | Alstonisinine A | CH3 | CHO | H | *α*-OH | H |
| 231 | Alstonisinine B | H | COCH3 | H | *α*-OH | H |
| 232 | Alstonisinine C | CHO | CH3 | *β*-H | CH3 | CH3 |
| 233 | *N*~~4~~-demethylalstophyllal oxindole | CH3 | CHO | OCH3 | *α*-H | CH3 |



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | compound | R1 | R2 | R3 |
| 236 | Alstofoline | CH3 | CHO | H |
| 237 | *N*1-demethylalstonisine | H | H | H |
| 238 | *N*1-demethylalstonal | H | H | CH3 |