**S1 Table** List of alkaloids identified in M. speciosa from previous studies based on first occurrence in this species.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Alkaloids** | **Plant material** | **Location** | **Reference** |
| 1 | Mitragynine\* | Leaves | Malaya | [1] |
| 2 | Mitraspecine | BarkWood | - | [2]  |
| 3 | Stipulatine (Rotundifoline) | BarkLeaves | Philippines | [3] |
| 4 | Rhynchophylline\* | BarkLeaves | Philippines | [3] |
| 5 | Speciofoline\* | Leaves | Malaya | [4] |
| 6 | Ajmalicine\* | Leaves | Thailand | [5] |
| 7 | Corynantheidine\* | Leaves | Thailand | [5] |
| 8 | Speciogynine | Leaves | Thailand | [5] |
| 9 | Paynantheine | Leaves | Thailand | [5] |
| 10 | Speciociliatine | Leaves | Thailand | [5] |
| 11 | Speciophylline | Leaves | Thailand | [6] |
| 12 | Mitraphylline | Leaves | Thailand | [6] |
| 13 | Isomitraphylline | Leaves | Thailand | [6] |
| 14 | Specionoxeine | Leaves | New Guinea | [7]  |
| 15 | Isospecionoxeine | Leaves | New Guinea | [7] |
| 16 | Ciliaphylline | Leaves | New Guinea | [7] |
| 17 | Isorotundifoline | Leaves | New Guinea | [7] |
| 18 | Isospeciofoline\* | Leaves | Thailand | [8] |
| 19 | Isomitrafoline | Leaves | Thailand | [8] |
| 20 | Mitrafoline | Leaves | Thailand | [8] |
| 21 | Rotundifoleine | Leaves | Thailand | [8] |
| 22 | Isorotundifoleine | Leaves | Thailand | [8] |
| 23 | Corynoxine A | Leaves (mature tree) | Thailand | [9] |
| 24 | Corynoxine B | Leaves (mature tree) | Thailand | [9] |
| 25 | Corynoxeine | Leaves (mature tree) | Thailand | [9] |
| 26 | Isocorynoxeine | Leaves (mature tree) | Thailand | [9] |
| 27 | Isorhynchophylline | Leaves (mature tree)LeavesStem barkRoot bark(Young plant) | Thailand | [9,10] |
| 28 | Isocorynantheidine | Leaves(Young plant) | Thailand | [10] |
| 29 | Isopaynantheine | Leaves(Young plant) | Thailand | [10] |
| 30 | Mitraciliatine | Leaves(Young plant) | Thailand | [10] |
| 31 | Rhynchophylline | LeavesYoung twigsStem bark(Mature tree)Stem barkRoot bark(Young plant) | Thailand | [9,10] |
| 32 | Mitragynine oxindole A | Young twigsStem bark(Mature tree Stem barkYoung plant) | Thailand | [9,10] |
| 33 | Mitragynine oxindole B | Young twigsStem bark(Mature tree Stem barkYoung plant) | Thailand | [9,10] |
| 34 | Mitrajavine | LeavesRoot bark(Young plant) | Thailand | [10] |
| 35 | Javaphylline | LeavesStem bark(Young plant) | Thailand | [10] |
| 36 | Akuammigine | Leaves(Young plant) | Thailand | [10] |
| 37 | 3-isoajmalicine | Leaves(Young plant) | Thailand | [10] |
| 38 | 3-dehydromitragynine | Leaves | Selangor, Malaysia | [11]  |
| 39 | Mitragynalinic acid | Young leavesMature leaves | Selangor, MalaysiaPerlis, Malaysia | [12] |
| 40 | Corynantheidinalinic acid | Young leavesMature leaves | Selangor, MalaysiaPerlis, Malaysia | [12] |
| 41 | Mitragynaline\* | Young leavesMature leaves | Selangor, MalaysiaPerlis, Malaysia | [12] |
| 42 | Corynantheidaline | Young leavesMature leaves | Selangor, MalaysiaPerlis, Malaysia | [12] |
| 43 | 7α-hydroxy-7H-mitragynine\* | Leaves | Thailand | [13] |
| 44 | 3,4,5,6-tetradehydromitragynine | Mature leaves | Malaysia | [14] |
| 45 | Mitralactonal | Mature leaves | Malaysia | [14] |
| 46 | Mitrasulgynine | Mature leaves | Malaysia | [14] |
| 47 | Mitralactonine | Young leaves | Malaysia | [15] |
| 48 | 9-methoxymitralactonine | Young leaves | Malaysia | [16] |
| 49 | 7-hydroxyspeciociliatine | Fruits | Malaysia | [17] |
| 50 | 7β-hydroxy-7H-mitraciliatine | Leaves | - | [18] |
| 51 | Isospeciofoleine | Leaves | - | [18] |
| 52 | Mitragynine-N(4)-oxide | Green Maeng Da (chipped leaf) | Southeast Asia | [19,20]  |
| 53 | Speciociliatine-N(4)-oxide | Green Maeng Da (chipped leaf) | Southeast Asia | [19,20] |
| 54 | Isopaynantheine-N(4)-oxide | Green Maeng Da (chipped leaf) | Southeast Asia | [20]  |
| 55 | Epiallo-isopaynantheine | Green Maeng Da (chipped leaf) | Southeast Asia | [20] |
| 56 | Epiallo-isopaynantheine-N(4)-oxide | Green Maeng Da (chipped leaf) | Southeast Asia | [20] |
| 57 | 3-epirhynchophylline | White Jongkong (fine powder) | Southeast Asia | [20] |
| 58 | 3-epicorynoxine B | White Jongkong (fine powder) | Southeast Asia | [20] |

\*Indole and oxindole alkaloids (mitragynine, 7-hydroxymitragynine, mitraphylline, isomitraphylline, javaphylline, speciogynine, isorynchophylline, corynoxine, corynoxine B, speciofoline, isospeciofoleine, rynchophylline, ajmalicine, and corynantheidine, paynantheine, isopaynantheine, speciociliatine) that were also annotated in this study.

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