****

**Fig. S1 Scatter plot showing the variation in the shape of wings of eight Calliphoridae genera.**

**Table S1. The 80 sequences obtained from Genbank and their locality and**

**accession numbers in this study.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **genus** | **Species** | **Locality** | **NCBI Accession No.** |
| 1 | *Aldrichina* | 1. *grahami*
 | Changsha, China | MN537823.1 |
| 2 | Chongqing, China | KC354374.1 |
| 3 | Egypt | KC249689. |
| 4 | Guangdong, China | KY031809.1 |
| 5 | Hangzhou, China | FJ614831.1 |
| 6 | Korea | EU880182.1 |
| 7 | Luoyang, China | MF281705.1 |
| 8 | USA | KX422286.1 |
| 9 | *Calliphora* | *C. vicina* | Belgium | KF918981.1 |
| 10 | Changsha, China | KY001893.1 |
| 11 | Egypt | MT102210.1 |
| 12 | Guangdong, China | DQ345096.1 |
| 13 | Korea | EU880192.1 |
| 14 | Portugal | MN868827.1 |
| 15 | Spain | KF225228.1 |
| 16 | UK | JX083403.1 |
| 17 | USA | KX893334.1 |
| 18 | Zhongshan, China | KJ862846.1 |
| 19 | *C.vomitori* | Belgiuma | KF919009.1 |
| 20 | Canada | KM858654.1 |
| 21 | Changsha, China | KY001919.1 |
| 22 | France | MF536049.1 |
| 23 | Italy | MG011666.1 |
| 24 | Korea | MG969489.1 |
| 25 | Portugal | JX438025.1 |
| 26 | Spain | KJ394710.1 |
| 27 | UK | EU418569.1 |
| 28 | USA | JQ806919.1 |
| 29 | *Chrysomya* | *Ch.megacephala* | Arabia | MF322596.1 |
| 30 | Australia | AB112861.1 |
| 31 | Bangladesh | MH429362.1 |
| 32 | Changsha, China | KY001896.1 |
| 33 | Chongqing, China | KC346279.1 |
| 34 | Ecuador | MG700291.1 |
| 35 | Egypt | KM434365.1 |
| 36 | Germany | KT894991.1 |
| 37 | Hangzhou, China | FJ614817.1 |
| 38 | Malaysia | KP407081.1 |
| 39 | Taiwan, China | AY092761.1 |
| 40 | Thailand | KR921605.1 |
| 41 | UK | EU418536.1 |
| 42 | USA | MF097234.1 |
| 43 | Zhongshan, China | KP408544.1 |
| 44 | *Achoetandrus* | *Ch.rufifacies* | Australia | AB112845.1 |
| 45 | Bangladesh | MH818325.1 |
| 46 | Egypt | KC249682.1 |
| 47 | Guangzhou, China | DQ345079.1 |
| 48 | India | MK353338.1 |
| 49 | Malaysia | JN571565.1 |
| 50 | Thailand | KR921626.1 |
| 51 | UK | EU418549.1 |
| 52 | USA | JQ806940.1 |
| 53 | Zhongshan, China | KY031777.1 |
| 54 | *Hemipyrellia* | *He.ligurriens* | Changsha, China | KY001907.1 |
| 55 | Guangzhou, China | DQ345092.1 |
| 56 | Hangzhou, China | FJ614823.1 |
| 57 | India | KM268792.1 |
| 58 | Korea | EU880207.1 |
| 59 | Malaysia | KJ496774.1 |
| 60 | Thailand | KR921674.1 |
| 61 | Zhongshan, China | KY031875.1 |
| 62 | *Lucilia* | *L.sericata* | Australia | AB112859.1 |
| 63 | Changsha, China | KY001892.1 |
| 64 | Chongqing, China | KC840682.1 |
| 65 | Egypt | KC249691.1 |
| 66 | Korea | EU880210.1 |
| 67 | Malta | MF059331.1 |
| 68 | Portugal | MN868899.1 |
| 69 | Spain | KJ394809.1 |
| 70 | UK | EU418579.1 |
| 71 | USA | KX893339.1 |
| 72 | *Protophormia* | *Pr.terraenovae* | Belgium | KF919043.1 |
| 73 | Canada | KM857599.1 |
| 74 | Changsha, China | KY001827.1 |
| 75 | Finland | KU374583.1 |
| 76 | USA | JQ807057.1 |
| 77 | ZhongShan, China | KY031898.1 |
| 78 | *Triceratopyga* | *T.calliphoroides* | Changsha, China | KY001913.1 |
| 79 | Korea | EU880178.1 |
| 80 | Luoyang, China | MF281697.1 |

**Table S2. Difference in wing shapes of eight Calliphoridae genera with canonical variate analysis.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Ach | Ald | Cal | Chr | Hem | Luc  | Promia | Tri |
| Ach | - | 0.0949 | 0.0748 | 0.0288 | 0.0960 | 0.0310 | 0.1059 | 0.1058 |
| Ald | **26.8853** | **-** | 0.0287 | 0.0775 | 0.0414 | 0.0310 | 0.0397 | 0.0218 |
| Cal | **8.5089** | **4.0299** | - | 0.0586 | 0.0524 | 0.0389 | 0.0563 | 0.0375 |
| Chr | **6.4564** | **19.6195** | **9.7955** | **-** | 0.0820 | 0.0661 | 0.0896 | 0.0882 |
| Hem | **12.5507** | **10.6829** | **9.5193** | **10.1122** | - | 0.0285 | 0.0665 | 0.0593 |
| Luc | **16.0697** | **11.8235** | **9.0168** | **14.8977** | **10.1582** | **-** | 0.0519 | 0.0494 |
| Pro | **29.9547** | **10.9679** | **10.8884** | **21.9797** | **20.8557** | **15.3188** | - | 0.0364 |
| Tri | **31.6453** | **6.6546** | **5.1887** | **25.7662** | **18.9556** | **15.9919** | **10.9637** | - |

Mahalanobis distances (bold) and Procrustes distances (narrow)

Abbreviations: Ach: *Achoetandrus*; Ald: *Aldrichina;* Cal: *Calliphora*; Chr: *Chrysomya*; Hem: *Hemipyrellia*; Luc: *Lucilia*; Pro: *Protophormia*; Tri: *Triceratopyga*

**Table S3. Percentages of correct classification acquired from pairwise comparison of genera with cross-validation test in MorphoJ.**

|  |  |  |
| --- | --- | --- |
|  |   | Group 2 |
|  |  | Ach | Ald | Cal | Chr | Hem | Luc  | Pro | Tri |
| Group 1 | Ach | - | **100** | **100** | **90** | **96.7** | **100** | **100** | **100** |
| Ald | 100 | **-** | **86.9** | **100** | **90** | **100** | **100** | **90** |
| Cal | 100 | 80 | - | **100** | **96.7** | **100** | **100** | **96.7** |
| Chr | 90 | 100 | 100 | **-** | **96.7** | **100** | **100** | **100** |
| Hem | 96.7 | 100 | 100 | 100 | - | **100** | **100** | **100** |
| Luc | 100 | 100 | 100 | 100 | 96.7 | **-** | **100** | **100** |
| Pro | 100 | 96.7 | 93.4 | 100 | 100 | 100 | - | **100** |
| Tri | 100 | 90 | 100 | 100 | 100 | 100 | 100 | - |

The values in bold are the percentages of the correct classification of group 1 obtained from group 1 compared with group 2; the values in narrow are the percentages of the correct classification of group 2 obtained from group 2 compared with group 1. Abbreviations: Ach: *Achoetandrus*; Ald: *Aldrichina;* Cal: *Calliphora*; Chr: *Chrysomya*; Hem: *Hemipyrellia*; Luc: *Lucilia*; Pro: *Protophormia*; Tri: *Triceratopyga*