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## LIST OF ABBREVIATIONS AND SYMBOLS

|       |  |
|-------|--|
| %     | Percentage                             |
| °C    | Degree Celsius                         |
| μl    | Microliter                             |
| μM    | Micromolar                             |
| bp    | Base pair                              |
| C     | Centromere                             |
| cm    | Centimeter                             |
| COI   | Cytochrome <i>c</i> oxidase subunit I  |
| COII  | Cytochrome <i>c</i> oxidase subunit II |
| DNA   | Deoxyribonucleic acid                  |
| dNTPs | Deoxynucleotide triphosphates          |
| e.g.  | Exempli gratia                         |
| et al | And others                             |
| etc.  | Etcetera                               |
| i.e.  | Id est                                 |
| ITS2  | Second internal transcribed spacer     |
| L     | Left arm                               |
| min   | Minute                                 |
| ml    | Milliliter                             |
| mM    | Millimolar                             |
| mtDNA | mitochondrial DNA                      |
| PCR   | Polymerase chain reaction              |
| pH    | Potential of hydrogen                  |
| R     | Right arms                             |
| rDNA  | ribosomal DNA                          |
| sec   | Second                                 |
| U     | Unit                                   |

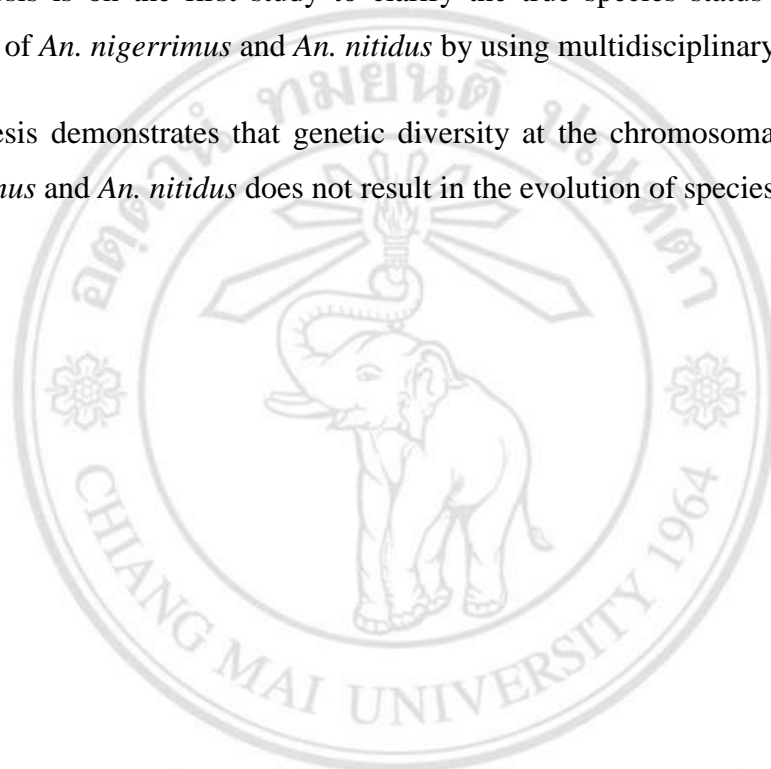
## ข้อความแห่งการริเริ่ม

1. วิทยานิพนธ์นี้เป็นการศึกษาแรกที่รายงานรูปแบบเมตาเฟสคาริโอไทป์รูปแบบใหม่ของยุงก้นปล่อง *Anopheles nigerrimus* และ *Anopheles nitidus*
2. วิทยานิพนธ์นี้เป็นการศึกษาแรกที่ทำให้ทราบอย่างชัดเจนถึงสถานะสปีชีส์ที่แท้จริงของรูปแบบเมตาเฟสคาริโอไทป์ที่มีความหลากหลายของยุงก้นปล่อง *An. nigerrimus* และ *An. nitidus* โดยใช้วิธีสหวิทยาการ
3. วิทยานิพนธ์นี้ได้แสดงให้เห็นว่าความหลากหลายทางพันธุกรรมในระดับโครโมโซมของยุงก้นปล่อง *An. nigerrimus* และ *An. nitidus* นั้น ไม่มีผลต่อการเกิดการวิวัฒนาการเป็นยุงก้นปล่องกลุ่มชนิดซับซ้อน

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## STATEMENT OF ORIGINALITY

1. This thesis is on the first study to report new metaphase karyotypes of *Anopheles nigerrimus* and *Anopheles nitidus*.
2. This thesis is on the first study to clarify the true species status of karyotypic variants of *An. nigerrimus* and *An. nitidus* by using multidisciplinary approaches.
3. This thesis demonstrates that genetic diversity at the chromosomal level of *An. nigerrimus* and *An. nitidus* does not result in the evolution of species complex.



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