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SUWANNEE ADSAVAKULCHAI : MORPHOMETRIC ANALYSIS FOR
IDENTIFICATION OF THE *BACTROCERA DORSALIS* COMPLEX USING WING
IMAGE ANALYSIS. THESIS ADVISOR : VISUT BAIMAI Ph.D., WUDHIBHAN
PRACHYABRUED Ph.D., PAUL J.GROTE, Ph.D. 137p. ISBN 974-661-694-3

The *Bactrocera dorsalis* complex (Diptera : Tephritidae) used in this study included *B. dorsalis*, *B. arecae*, *B. propinqua*, *B. pyrifoliae*, *B. verbascifoliae*, and three new species complexes are species E, species K and species P. *Bactrocera tau* was used as an out-group. Wings of 624 adults, which emerged from pupae collected from natural populations in Thailand, were prepared for measurements. Morphometric analysis was performed on measurements of wing vein characters. Wing images were captured in digital format and taken through digital image processing to calculate the Euclidean distance between wing vein junctions. Discriminant and cluster analyses were used for dichotomy of classification processes. All 624 wing specimens were classified to species in terms of the percentage of "grouped" cases which yielded about 89.6% accurate identification compared with the formal description of these species. After clustering, the percentage of "grouped" cases yielded about 100.0%, 98.9%, 98.1%, 95.2% and 84.6% accurate identification between the *B. dorsalis* complex and *B. tau*, *B. arecae* and Species E, *B. dorsalis* and *B. verbascifoliae*, *B. propinqua* and *B. pyrifoliae*, and species K and species P, respectively. This method of numerical taxonomy may be useful for practical identification of other groups of agricultural pests.