**Table 8: Comparison of the accuracies of directly trained ANN and PLS classification models on *Aedes aegypti* and *Aedes albopictus* in datasets from other published studies.**

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| --- | --- | --- | --- | --- |
| Dataset | Metric  | Model architecture | P-value(two-tail) | P-value(one-tail) |
| PLS | ANN |
| DS9(N = 395) | Accuracy (%) | 86.9 $\pm $ 2.8 | 92.4 $\pm $ 2.5 | < 0.001 | < 0.001 |
| Sensitivity (%) | 93.3 $\pm $ 4.3 | 94.5$ \pm $ 2.8 | 0.22 | 0.89 |
| Specificity (%) | 82.3$ \pm $ 2.2 | 88.9 $\pm $ 1.4 | < 0.001 | < 0.001 |
| DS10(N = 600) | Accuracy (%) | 91.9 $\pm $ 1.3 | 97.4 $\pm $ 1.2 | <0.001 | <0.001 |
| Sensitivity (%) | 93.9 $\pm $ 1.9 | 96.5 $\pm $ 1.0 | 0.034 | 0.05 |
| Specificity (%) | 89 2 $\pm $ 1.7 | 94.6 $\pm $ 1.8 | 0.005 | 0.008 |
| DS11(N = 233) | Accuracy (%) | 85.7 $\pm $ 2.1 | 94.6 $\pm $ 1.3 | < 0.001 | < 0.001 |
| Sensitivity (%) | 89.1$\pm $ 3.2 | 96.4$\pm $ 1.9 | 0.04 | 0.06 |
| Specificity (%) | 83.2 $\pm $ 5.6 | 92.1$\pm $ 2.8 | < 0.001 | < 0.001 |
| DS12(N = 229) | Accuracy (%) | 89.9 $\pm $ 6.5 | 95.3 $\pm $ 3.4 | < 0.001 | < 0.001 |
| Sensitivity (%) | 89.9 $\pm $ 6.7 | 93.6 $\pm $ 3.1 | 0.04 | 0.06 |
| Specificity (%) | 80.0$ \pm $ 7.5 | 91.2 $\pm $ 3.6 | < 0.001 | < 0.001 |
| DS13(N = 277) | Accuracy (%) | 91.2 $\pm $ 2.7 | 95.9 $\pm $ 2.8 | 0.01 | 0.007 |
| Sensitivity (%) | 94.6 $\pm $ 2.2 | 94.4$\pm $ 2.9 | 0.72 | 0.36 |
| Specificity (%) | 86.$4\pm $ 6.8 | 98.5 $\pm $ 1.7 | < 0.001 | < 0.001 |
| DS14(N = 284) | Accuracy (%) | 83.7 $\pm $ 3.6 | 92.9 $\pm $ 2.4 | < 0.001 | < 0.001 |
| Sensitivity (%) | 91.3 $\pm $ 1.1 | 98.3 $\pm $ 1.2 | < 0.001 | < 0.001 |
| Specificity (%) | 67.$8\pm $ 7.2 | 87.8 $\pm $ 2.8 | < 0.001 | < 0.001 |
| DS15(N = 905) | Accuracy (%) | 84.2 $\pm $ 1.6 | 90.8 $\pm $ 1.2 | 0.008 | 0.005 |
| Sensitivity (%) | 89.0 $\pm $ 3.1 | 90.5 $\pm $ 2.6 | 0.277 | 0.862 |
| Specificity (%) | 73.$6\pm $ 5.7 | 89.4 $\pm $ 1.1 | < 0.001 | < 0.001 |
| DS16(N = 1113) | Accuracy (%) | 81.1$ \pm $ 1.5 | 92.9 $\pm $ 2.4 | < 0.001 | < 0.001 |
| Sensitivity (%) | 88.4 $\pm $ 1.2 | 96.7 $\pm $ 2.1 |  0.003 |  0.002 |
| Specificity (%) | 71.7$ \pm $ 3.4 | 89.8 $\pm $ 2.7 | < 0.001 | < 0.001 |
| DS17(N = 585) | Accuracy (%) | 89.8 $\pm $ 2.1 | 95.9 $\pm $ 2.2 |  0.021 | 0.011 |
| Sensitivity (%) | 95.6 $\pm $ 1.5 | 98.3 $\pm $ 0.4 |  0.03 | 0.02 |
| Specificity (%) | 80.$7\pm $ 6.6 | 94.6 $\pm $ 2.1 | < 0.001 | < 0.001 |
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