







#### 4. CONCLUSION

Implementation of the proposed method on examined dataset lead to extraction of features that mainly are discriminative, because of degeneracy of  $S_w^{-1}S_b$  was almost declined. The superior result obtained by ASEDA using 1-NN classifier in both dataset. Moreover, the results demonstrate that classification accuracy improves about 3% to 4% using ASEDA for Indiana pine and about 2% to 3% in DC data set compared to conventional feature extraction algorithms.

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| Table III : result of implementation in term of Overall Classification Accuracy(OCA) |            |                  |                  |
|--|------------|------------------|------------------|
| Feature Extraction   | Classifier | Dataset          |                  |
|  |            | Indian Pine      | DC               |
| full Dimension   | QDC        | 0.206            | 0.534            |
|  | 1NN        | 0.474            | 0.965            |
|  | SVM        | 0.189            | 0.948            |
| PCA  | QDC        | 0.591(5)         | 0.969(3)         |
|  | 1NN        | 0.618(20)        | 0.965(12)        |
|  | SVM        | 0.613(6)         | 0.946(2)         |
| LDA  | QDC        | 0.238(4)         | 0.474(6)         |
|  | 1NN        | 0.158(12)        | 0.409(4)         |
|  | SVM        | 0.179(6)         | 0.476(5)         |
| NWFE   | QDC        | 0.704(5)         | 0.961(3)         |
|  | 1NN        | 0.739(10)        | 0.973(17)        |
|  | SVM        | 0.766(7)         | 0.949(2)         |
| SDA  | QDC        | 0.539(5)         | 0.891(5)         |
|  | 1NN        | 0.586(10)        | 0.862(6)         |
|  | SVM        | 0.521(7)         | 0.801(6)         |
| SELF   | QDC        | 0.743(5)         | 0.961(3)         |
|  | 1NN        | 0.751(20)        | 0.958(12)        |
|  | SVM        | 0.762(6)         | 0.941(2)         |
| SELD   | QDC        | 0.649(7)         | 0.969(4)         |
|  | 1NN        | 0.761(18)        | 0.976(15)        |
|  | SVM        | 0.750(12)        | 0.959(3)         |
| Proposed method (ASEDA)  | QDC        | 0.655(7)         | 0.979(4)         |
|  | 1NN        | <b>0.793(19)</b> | <b>0.982(15)</b> |
|  | SVM        | 0.713(12)        | 0.973(3)         |

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