TABLEVII: Comparison Results

	Original image			Encryption image		
Lena	Horizontal	Vertical	Diagonal	Horizontal	Vertical	Diagonal
Ours	*0.9348*	*0.9151*	*0.8408*	*0.0015*	*-0.0037*	*0.0079*
Zhang's[10]	0.9821	0.9912	0.9431	0.0012	0.0156	0.1326
Lin's [11]	0.9217	0.9711	0.9227	0.0242	0.0194	0.0243
Ye's [12]	0.9833	0.9626	0.9514	0.0770	−0.0724	−0.0615
Huang's [13]	0.9457	0.9291	0.9859	−0.0974	−0.0707	0.0484
Ye's [14]	0.9690	0.9637	0.9492	−0.0134	0.0012	0.0398
Qiang Zhang,[15]	0.9432	0.9688	0.9148	0.1366	0.0166	0.0021

5. CONCLUSION

This paper presents a novel image encryption algorithm based on DNA sequence operations and 2D Logistic map. Our method can be easily implemented and is computationally simple to achieve high-security level, high speed, and high sensitivity. Moreover, it can be applied to encrypt images. In order to increase the security of the proposed algorithm, a 256 bit-long secret key is employed to produce the initial conditions of the 2D Logistic map. The entropy test indicates that information leakage is negligible. The encrypted image histogram is uniform and the analysis of its correlation coefficient values indicates that the adjacent pixels are nearly unrelated. The individual correlation coefficient values are smaller compared with the available literature.

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