Table B1: Phishing dataset. Performance of different methods under noise. We generate noise by randomly replacing the results of different rows in the base clusterings with other clusters. It can be observed that our method still exhibits satisfactory performance even at high noise levels.

	ARI					NMI					Purity				
Method	10%	30%	50%	70%	90%	10%	30%	50%	70%	90%	10%	30%	50%	70%	90%
CEAM	5.9±2	5.9±2	5.8±2	1.3±2	0.0±1	6.0±2	4.8±2	4.7±2	1.1±2	0.1±1	59.9±2	60.1±2	60.7±2	57.1±2	55.5±2
CES^{2}L	3.7±3	6.7±3	7.7±4	0.5±2	0.2±1	4.7±3	7.1±4	6.3±3	0.6±2	0.1±1	59.0±3	61.1±3	62.0±4	56.1±2	55.5±2
CES^{2}Q	5.1±4	5.6±3	5.7±3	1.0±2	0.1±1	5.3±3	5.6±4	5.2±3	0.9±2	0.1±1	59.5±3	59.9±3	60.5±3	56.6±3	55.5±2
LWEA	-0.4±2	-0.2±2	0.0±2	0.0±1	0.0±1	0.2±2	0.1±2	0.2±2	0.3±2	0.1±1	55.5±2	55.5±2	55.6±2	55.7±2	55.5±2
MKKM	7.7±3	0.9±2	3.9±2	1.2±2	0.0±1	7.9±3	2.8±3	3.9±3	1.0±2	0.1±1	61.3±3	56.7±3	59.3±3	56.9±2	55.5±2
SMKKM	7.3±3	7.6±3	3.3±3	0.5±2	0.2±1	7.1±3	7.1±3	3.7±3	0.6±2	0.1±1	61.2±3	61.5±3	58.6±3	56.1±2	55.5±2
SEC	4.5±4	3.4±3	8.4±5	1.0±3	0.1±2	5.5±4	4.1±3	7.0±4	1.1±3	0.1±2	59.7±4	58.8±3	62.7±5	56.6±3	55.5±2
TRCE	8.6±2	5.1±2	6.9±3	1.1±2	0.0±1	8.3±2	5.0±2	5.7±2	1.1±2	0.1±1	62.1±2	59.7±2	61.4±3	56.8±3	55.5±2
CESHL	-0.4±3	0.0±2	0.3±3	0.3±2	0.0±1	0.2±2	0.5±3	0.8±3	0.3±2	0.0±1	55.5±2	55.7±2	56.0±3	55.9±3	55.5±2
SCCABG	3.7±3	7.2±4	8.0±4	0.5±2	0.1±1	4.7±3	7.4±4	6.9±3	0.6±2	0.1±1	58.5±4	61.4±4	62.3±4	56.0±3	55.5±2
AWEC	5.1±3	4.2±3	9.1±3	0.8±3	0.1±2	5.4±3	4.7±3	7.3±3	0.8±2	0.1±1	59.7±3	59.1±3	63.1±3	56.5±3	55.5±2
ECCMS	-0.3±3	-0.2±3	0.3±3	0.2±3	0.0±2	0.2±3	0.4±3	1.2±3	0.3±2	0.1±2	55.5±2	55.7±2	56.2±3	55.8±3	55.5±2
NWCA	-0.4±3	0.0±2	0.3±3	0.3±3	0.0±2	0.2±3	0.5±3	0.8±3	0.3±3	0.0±2	55.5±2	55.7±2	56.0±3	55.9±3	55.5±2
Proposed (α=0.1)	$\underline{27.6}$±6	$\underline{23.2}$±5	$\underline{16.7}$±3	$\underline{4.9}$±2	$\underline{0.2}$±1	$\underline{21.7}$±3	$\underline{18.0}$±2	$\underline{12.7}$±3	$\underline{3.7}$±2	$\underline{0.1}$±1	$\underline{75.3}$±3	$\underline{68.1}$±3	$\underline{65.9}$±3	$\underline{57.2}$±3	$\underline{55.5}$±2
Proposed	**27.6**±6	**23.2**±5	**19.4**±6	**5.6**±6	**0.2**±1	**21.7**±6	**18.0**±6	**14.6**±6	**4.1**±6	**0.1**±1	**75.3**±3	**68.1**±3	**68.4**±3	**57.9**±3	**55.5**±2

Table B2: Seeds dataset. When the noise level reaches 90%, we consider that all methods are unable to provide valuable information, as the data is severely contaminated at this point.

	ARI					NMI					Purity				
Method	10%	30%	50%	70%	90%	10%	30%	50%	70%	90%	10%	30%	50%	70%	90%
CEAM	61.0±4	60.1±4	50.3±6	18.7±5	0.1±2	57.6±9	58.0±8	36.5±7	4.9±5	1.4±2	76.1±2	76.3±3	62.1±4	41.1±4	37.1±2
CES^{2}L	55.2±7	45.2±5	31.0±13	2.9±7	0.3±3	58.6±9	57.0±9	40.0±17	6.7±8	1.7±3	74.8±7	75.7±5	66.5±11	43.1±5	36.9±2
CES^{2}Q	50.5±10	41.8±8	28.5±12	3.6±8	0.2±2	58.3±14	51.8±13	35.3±16	6.0±10	1.6±3	74.6±9	70.3±7	61.8±11	42.3±6	37.0±2
LWEA	60.3±2	58.1±3	44.1±6	6.9±4	0.2±3	60.4±4	56.5±6	38.2±9	8.3±8	1.8±3	77.7±1	75.6±2	63.2±3	45.8±5	36.6±2
MKKM	44.6±13	26.7±7	14.9±5	9.2±3	0.4±2	44.1±14	26.4±7	14.5±5	9.5±2	$\underline{2.3}$±2	75.0±11	65.3±5	57.8±4	52.4±2	$\underline{41.0}$±1
SMKKM	59.2±3	53.5±2	49.7±5	20.8±4	0.6±2	60.4±5	55.8±6	48.3±5	18.3±4	1.4±2	82.9±2	79.6±2	79.0±3	60.8±4	39.5±2
SEC	30.3±6	40.8±4	33.6±8	10.0±4	0.4±3	58.7±13	47.8±9	40.0±12	11.6±6	1.8±4	64.2±4	70.3±2	65.7±6	51.0±4	39.2±2
TRCE	58.1±2	52.2±3	44.0±5	10.3±8	0.1±3	59.7±2	58.0±3	48.6±8	18.7±9	1.6±3	82.6±1	82.1±2	73.1±4	50.5±6	36.5±2
CESHL	58.1±8	55.4±5	35.0±2	14.8±9	0.3±2	56.7±12	56.2±9	42.3±17	19.4±3	1.4±2	82.5±7	79.6±7	66.7±11	53.2±7	38.8±2
SCCABG	56.9±6	48.2±6	17.8±8	0.6±7	0.0±2	58.9±10	56.6±21	26.3±21	4.2±6	$\underline{2.3}$±2	81.7±7	75.1±12	53.4±12	35.8±5	34.7±1
AWEC	55.1±2	54.7±2	50.1±4	19.7±5	0.0±2	61.7±4	61.5±5	47.6±8	20.2±6	0.8±2	83.2±2	80.0±2	81.6±2	62.3±4	37.8±3
ECCMS	60.9±3	50.1±2	44.1±6	6.9±4	0.2±3	60.0±7	53.4±6	45.8±9	9.2±8	1.2±3	83.8±2	79.0±2	73.9±3	47.2±5	38.3±2
NWCA	58.6±2	49.1±2	23.9±3	2.1±3	0.2±2	58.1±4	47.9±7	27.4±9	4.1±8	1.0±3	82.4±2	77.5±2	61.0±3	41.6±4	37.9±2
Proposed (α=0.1)	$\underline{68.0}$±6	$\underline{67.3}$±6	$\underline{57.1}$±6	$\underline{22.4}$±6	$\underline{0.4}$±3	$\underline{67.9}$±12	$\underline{66.1}$±12	$\underline{53.6}$±9	$\underline{20.6}$±3	1.2±3	$\underline{87.9}$±2	$\underline{87.7}$±2	$\underline{83.4}$±3	$\underline{63.5}$±8	39.2±2
Proposed	**68.0**±6	**67.3**±6	**58.8**±4	**25.1**±5	**0.5**±3	**67.9**±12	**66.4**±12	**55.9**±7	**23.2**±3	**2.5**±2	**87.9**±2	**87.7**±2	**84.1**±3	**65.9**±5	**41.5**±2