TABLE V
COMPARISON BETWEEN EXPERIMENTAL AND MODEL RESULTS AT T_2 = 900°C

ER	Experimental					Model					RMSE
	Biochar (%)	CO (%)	CO_2 (%)	H_2 (%)	CH_4 (%)	Biochar (%)	CO (%)	CO_2 (%)	H_2 (%)	CH_4 (%)	
0.2	29.10	20.15	1.63	6.92	6.53	27.14	21.00	1.98	6.95	6.84	0.978
0.25	28.60	21.16	1.69	7.10	7.02	26.28	22.29	2.18	7.08	7.03	1.175
0.3	28.20	24.02	1.70	7.69	7.62	25.45	23.58	2.36	7.54	7.37	1.287
0.35	27.50	22.45	1.88	6.74	6.08	24.66	22.43	2.70	7.40	7.03	1.420
0.4	27.10	21.18	1.98	6.30	4.66	23.88	21.31	2.95	7.31	6.91	1.866
										Average	1.345

IV. CONCLUSION

This study has developed an equilibrium model to simulate the gasification process in a downdraft gasifier. The model has been verified by comparing it with the experimental investigation results. The percentage of biochar and syngas components predicted from the developed model and the experimental investigation is in good agreement. The results indicated that the average RMSE value of the model is the criterion of the agreement between experimental data and model, when ER from 0.2 to 0.4, the average RMSE value was 1.642; 1.882; 1.445 and 1.345 in T_2 was 750°C; 800°C; 850°C and 900°C, respectively. Therefore, the model is reliable for predicting the biochar and syngas compositions by varying the gasification temperature and equivalence ratio. It can be acceptable for further prediction.

ACKNOWLEDGMENT

We thank the Biomass Energy Research Lab, National Chung Hsing University, Taiwan, for supporting us to determine the ultimate and proximate analysis of IR 50404 rice husk.

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