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Robustness analysis of a green chemistry-based model for the classification of silver nanoparticles synthesis processes

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Graphical abstract

Test production processes for the synthesis of silver nanoparticles	Model 1 developed with Dominance-based Rough Set Approach (DRSA) method	Model 2 (proposed in this article) developed with ELECTRE method					Concordance between models
	$Class_1 < C_2 < C_3 < C_4 < Class_5$						
	Recommended class of performance	C_1	C_2	C_3	C_4	C_5	
t_1	C_5	0%	0%	13%	6%	81%	Yes
t_2	C_2	0%	92%	0%	8%	0%	Yes
t_3	C_2	0%	77%	23%	0%	0%	Yes
t_4	C_4	0%	0%	19%	67%	14%	Yes
t_5	C_2	7%	93%	0%	0%	0%	Yes

Research results:

- The same class is recommended for the test production processes by the two MCDA models from 76.0 % up to 93.3 % of the comparisons (120 in total)
- Enriched decision recommendations emerge from joint use of MCDA methods

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