

Table 4. Ranking of alternatives employing TOPSIS method

	D^*	D^-	C^*	Rank
A_1	5.317	0.786	0.128	4
A_2	5.368	0.980	0.154	1
A_3	5.218	0.857	0.141	2
A_4	5.272	0.841	0.137	3

4 Conclusions

Fuel provider selection problem, which contains several individual factors including vagueness and imprecision, may be thought as a highly important group decision-making problem. In this study, a fuzzy multi-criteria decision making approach which combines 2-tuple fuzzy linguistic modeling, linguistic hierarchies, and COPRAS method is introduced. The developed approach aims to manage multi-granular linguistic information, allows decision makers to use different semantic types, and copes with loss of information which may be occur due to the classical MCDM methods.

Lead time, reliability, sustainability, cost, service quality, location and warranties are considered as evaluation criteria. A numerical example, which illustrates the application, is provided by conducting a case study in food sector of Turkey. Future research may focus on multi-criteria decision problems with the presence of interdependence/interactions among criteria which influence the ranking process.

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