Evaluation of SIMDualKC Using Lysimetric Data for Estimating Daily Evapotranspiration of (Coriandrum Sativum L.）

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Abstract

The SIMDualKc model is an irrigation scheduling simulation model that uses dual crop coefficient method for estimating ETc by computing two separate soil water balances in daily time-step, one for the soil evaporation layer from which K_e is computed, and the other one for the entire root zone to compute the actual Kcb adjusted to the soil moisture conditions. In this study, lysimetric measurements of evapotranspiration rates relative to (*Coriandrum sativum* L.) during 2 years were used for model calibration and validation. K_{cb} values for *coriandrum* were found as 0.21 for the initial, 1.12 for the mid-season and 0.79 at harvesting period. Model results have shown a good agreement between the actual daily evapotranspiration predicted by the model and the ones resulting in water balance calculation on drainable lysimeters, and root mean square errors of estimates (RMSE) of about 1.64 mm and 1.53 mm for the calibration and validation, respectively.The modeling efficiency EF and the index of agreement d_{IA} were equal to 0.8 and 0.93, respectively, thus indicating good performance of modeling with SIMDualKc. Model estimates of evaporation (E) for validation and calibration years displayed an average of 181 mm, representing 25% of ET_c. In conclusion, results show that the model is appropriate to simulate the daily evapotranspiration adopting the dual K_c approach for coriandrum in west regions of Iran.

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