

Review Form 1.6

Journal Name:	International Journal of Environment and Climate Change
Manuscript Number:	Ms_IJECC_85741
Title of the Manuscript:	Growth, productivity, economics and water use efficiency of rabi castor (Ricinus communis) as influenced by drip fertigation
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>Please add recent references. Please add brief discussion. I suggested Minor changes in the manuscript. Explain why 0.6 Epan is not better for 0.8 Epan in the discussion? The manuscript is informative. Explain what are the characteristics of soil in Dry and wet regimes? Explain the water quality used for irrigation? During the experiment, was silicon-based adjuvant used or not?. Explain sink to source relationship?</p>	<p>Please add recent references</p> <p>Reply: Three recent References added. Accordingly new information added in Introduction in page 1.</p> <p>Eleni G. Papazoglou, Efthymia Alexopoulou, George K. Papadopoulos and Garifalia Economou-Antonaka 2020. Tolerance to drought and water stress resistance mechanism of castor bean. <i>Agronomy</i>, 10, 1580; doi: 10.3390/agronomy10101580</p> <p>Nascimento D A, Brito A D S, L U N da Silva, L S Peixoto, V F Cotrim.2022. Water use efficiency of castor bean under semi-arid conditions of Brazil, <i>Agricultural Water Management</i>. 260:107278</p> <p>Santosh J 2021. Indain castor crop survey: 2020-21. In: <i>global castor conference 2021</i>, organized by solvent extractors' association of India (SEA), Mumbai, held on 19 February, 2021</p> <p>Please add brief discussion.</p> <p>Reply: As suggested, brief discussion added in revised manuscript</p> <p>I suggested Minor changes in the manuscript.</p> <p>Reply: As suggested, minor changes incorporated in the manuscript.</p> <p>Explain why 0.6 Epan is not better for 0.8 Epan in the discussion?</p> <p>Reply: Though, drip fertigation at 0.8 Epan + 100% N&K through fertigation (I₆) resulted in numerically higher seed yield, dry stalk yield over drip fertigation at 0.6 Epan + 100% N&K through fertigation (I₃) they were statistically at par. Relatively higher seed yield at 0.8 Epan was due to higher soil water content in the wetted portion of the plant root zone remains fairly constant because irrigation water is supplied slowly and frequently on daily basis as per the crop water requirement. Thus with high frequency drip irrigation the time-average soil water potential increases (soil water suction decreases) in the crop root zone and is restricted to a narrow range with elimination of the wide fluctuations in the soil water content, which typically result from conventional surface irrigation methods, as factors affecting plant growth and yield as was evident from variation in soil moisture content (based on crop ET_c) in drip irrigated (I₆ and I₃) crop versus surface irrigated check basin (I₈). The maintenance of continuously high soil water potential, thus minimizing wide fluctuations in soil water content during the irrigation cycle, is an important and advantageous feature of drip irrigation (1). Other discussions (8, 13 and 16) also imply that the best irrigation policy is to apply water as frequently as possible.</p> <p>Thus, maintained favourable soil water balance under I₆, I₃ and I₅ drip irrigation treatments as was evident from better soil moisture regimes which aided the crop plants to put forth improved</p>

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		<p>performance over other treatments, since water plays a vital role in the carbohydrate metabolism, protein synthesis, cell wall synthesis and cell enlargement (7, 8).</p> <p>(This discussion added in page 7 of revised manuscript)</p> <p>The manuscript is informative.</p> <p>Explain what are the characteristics of soil in Dry and wet regimes? Reply: Not studied in the experiment</p> <p>Explain the water quality used for irrigation? Reply: Irrigation water quality recorded a pH of 7.85; Ec-0.703 ds m⁻¹: Ca+2- 6.02 m.eq l⁻¹; Mg+2 -1.35 m.eq/1; Na+2; Carbonates- 0.42 m.eq l⁻¹; bi-carbonates 2.31 m.eq/l and all were well within the permissible limits and was found to be safe for irrigation</p> <p>During the experiment, was silicon-based adjuvant used or not?. Reply: Not used in the experiment</p> <p>Explain sink to source relationship?</p> <p>Reply: Sink to source relationship was explained through Harvest Index (%) (Please seed new data added in Table 2) The harvest index was the highest (61%) in drip fertigation at 0.8 Epan + 100% N&K through fertigation (I₆) followed by drip fertigation at 0.6 Epan + 100% N&K through fertigation (I₃). The lowest H.I was observed in surface irrigation (I₈)</p>
Minor REVISION comments	Please write references properly. If leaf area was measured, then add in the paper.	Please write references properly. Reply: As suggested, changes incorporated in the manuscript.
Optional/General comments	The Paper is good, informative. Could be published, Please add soil depth. How much soil strip (area per crop) is wetted per irrigation? Dripper Size? Per dripper discharge of water/hour?	The Paper is good, informative. Could be published, Please add soil depth. Reply: Soil depth was (60 cm)
		<p>How much soil strip (area per crop) is wetted per irrigation? Reply: Wetting of 40-45 cm diameter was observed around each castor plant.</p> <p>Dripper Size? Per dripper discharge of water/hour?</p> <p>Reply: Drippers were operated at 1.2 bar pressure for a required period as per treatment to deliver water at a flow rate of 4 liters per hour (LPH)</p>

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PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	NO