Review of "Deterministic and Stochastic Nonlinear Schistosomiasis Model with Delay and Vaccination"

This paper aims to study a mathematical model dealing with the Schistosomiasis. The authors introduce a deterministic SIR delay model with vaccination, capturing parasite dynamics in both humans and molluscs. By modifying coefficients, they develop a stochastic SIR model with vaccination and delay, expanding control options.

It's an interesting work with cumbersome calculations and I have some comments.

1. The quantity $\lambda_i \Lambda_i,\ i \in \{1, 2\}$ is interpreted as the transfer of individuals from S to R (i.e. the vaccinated individuals), where λ refers to the percentage of the vaccinated population... I would like to understand why you didn't chose to work with $\lambda_i S_i$ instead?

2. In page 9, $\mathcal{V}$ is not correct since it doesn't checks the fourth condition (A4) from " P Van den Driessche and James Watmough, Further notes on the basic reproduction number, Mathematical epidemiology, Springer, 2008, pp. 159–178. ", and since $X' = \mathcal{F} - \mathcal{V}$, so $\mathcal{V}$ should excludes the sign $-$ in your form.

3. Once R_0 is expressed as a square root, it has been mentioned in the vast literature that the biological interpretation is lost. Could you, please, add more details or a reference on the interpretation of R_0 when you say it's a geometric mean?

4. On page 11, (EE) is the **positif solution** obtained by solving $d(X(t)) = 0$. (You should precise the bold text.

5. The two sentences at the beginning of page 12 could be removed; it's obvious from (2.6) that $I_1^* = 0 \Rightarrow$ DFE, we focus on the quadratic polynomial.

6. On page 13, Could you change the notation of the eigenvalue λ in $det(J_F(E^0) - \lambda I_8$? it's confusing with λ_i.

7. In the proof of Theorem 2.4, could you be more explicit on why you want to obtain $(\mu_3 + a)^2 + b^2 \leq \mu_3^2$?