



SDI Review Form 1.6

Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2014_BJMCS_9248
Title of the Manuscript:	Analytical solutions to the fractional Fisher equation by applying the fractional sub-equation method
Type of the Article	Original Research Article

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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.

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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	1. What's the meaning of $f^{(\alpha-n)}(x)$ in (4)? 2. How we can do when the n is large in (9)? Is there general method to do it? 3. If the initial-boundary is equipped, then do your method can still work? 4. There exists a contradiction between (17) and (41).	1. $D_x^\alpha f(x) = \begin{cases} \frac{1}{\Gamma(1-\alpha)} \int_0^x (x-\xi)^{-\alpha-1} [f(\xi) - f(0)] d\xi, & \alpha < 0 \\ \frac{1}{\Gamma(1-\alpha)} \frac{d}{dx} \int_0^x (x-\xi)^{-\alpha} [f(\xi) - f(0)] d\xi & 0 < \alpha < 1 \\ [f^{(\alpha-n)}(x)]^{(n)} & n \leq \alpha \leq n+1, n \geq 1. \end{cases}$ Where $[f^{(\alpha-n)}(x)]^{(n)} = \frac{d^n}{dx^n} [D_x^{(\alpha-n)} f(x)]$, and $0 \leq \alpha - n \leq 1, n \geq 1$ is the most used notation in the literature See Refs. [27,29,30,47,48] cited in the manuscript. 2. For the formal solution given by the Eq. (9) the value of n needs to be determined by balancing the coefficients of the highest order derivatives and nonlinear terms of the fractional ordinary differential equation that we are considering in a particular case. The reduction or extension in the size of computation in order to obtain the value of n would be determined by the highest order fractional derivatives involved and how much complex are the nonlinear terms in the fractional differential equation that we are considering. 3. Taking into account the initial or boundary conditions in the solution of fractional differential equation with in the fractional sub-equation method is not easy, and in general it would be possible only if the specific conditions involved can be reproduced by any combination of the solutions of the Riccati equation (the solution given in the Eq. (11) of the present manuscript) at the considered boundary or in the initial time. 4. There is no contradiction between equations (17) and (41) because before considering directly Eq. (36) we have performed a change of variable given by the Eq. (37) and when this change of variable has been performed the ansatz for the analytical solution of the Eq. (38) turns to be given by the Eq. (41).



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Minor REVISION comments	Please show how to get (17).	If we consider the following general formal solution: $u(\xi) = \sum_{i=0}^{m_{\max}} a_i \phi^i,$ and substituting into Eq. $c^\alpha D_\xi^\alpha u - k^{2\alpha} D_\xi^{2\alpha} u - 6u(1-u) = 0.$ taking into account the fractional Riccati equation: $D_\xi^\alpha \phi = \sigma + \phi^2,$ and the properties of the Jumarie's modified Riemann-Liouville derivative we obtain: $0 = \sum_{i=0}^{m_{\max}} i c^\alpha a_i (\sigma + \phi^2) \phi^{i-1} - \sum_{i=0}^{m_{\max}} i(i-1) k^{2\alpha} a_i (\sigma + \phi^2)^2 \phi^{i-2} - \sum_{i=0}^{m_{\max}} i k^{2\alpha} a_i 2\phi(\sigma + \phi^2) \phi^{i-1} - 6 \left(\sum_{i=0}^{m_{\max}} a_i \phi^i - \sum_{i,j=0}^{m_{\max}} a_i \phi^i a_j \phi^j \right),$ Balancing the coefficients of the highest order derivatives and nonlinear terms we obtain: $m_{\max} = 2$ $\Rightarrow$ $u(\xi) = a_0 + a_1 \phi + a_2 \phi^2,$
Optional/General comments		