Peer Review Report

Review Report on Optimization of Erythritol Production through Fermentation Using Molasses as Carbon Source

Original Research, Acta Biochim. Pol.

Reviewer: Ginna Quiroga
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EVALUATION

Q 1 **Please summarize the main findings of the study.**

This article addresses a latent public problem such as the demand for erythritol but does not consider that research on this topic is scarce, as is the use of the yeast Moniliella spp. The use of agro-industrial waste is unusual, so I would recommend adding a bio-economy and sustainability approach to the production process.

Q 2 **Please highlight the limitations and strengths.**

I think it is a well-conducted study with sufficient evidence and results, but the lack of statistical parameters limits the analysis and understanding. At least they should be included in the supplementary material.

Q 3 **Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

The methodology is well explained. The statistical support for the results is missing. Check the wording of the discussion and conclusions. The conclusions are a little weak. Check that all references follow the same model.

Check List

Q 4 **Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List)**

This article addresses a latent public problem such as the demand for erythritol but does not consider that research on this topic is scarce, as is the use of the yeast Moniliella spp. The use of agro-industrial waste is unusual, so I would recommend adding a bio-economy and sustainability approach to the production process. The methodology is well explained. The statistical support for the results is missing. Check the wording of the discussion and conclusions. Conclusions are a little weak. Check that all references follow the same model.
Some suggestions from the text are detailed below:
Line 24: "...0.095 ± 0.021 g/Lh. The pH optimization revealed..."
Line 116: I don't consider the molasses/extract ratio a real C/N ratio. Please review.
Line 119: "...g/L). Moniliella pollinis SP5 pre-culture..."
Line 127: "...and 45 g/L). Moniliella pollinis SP5 pre-culture ..."
Lines 130-131: did you mean that fermentation was repeated twice and chromatographical analyses were carried out three times?
Line 136: "... MYM media. Moniliella pollinis SP5..."
Line 143: "Moniliella pollinis SP5 pre-culture..."
Line 154, 277: "Growth kinetic..."
Lines 207, 273, 352, 439, 500: which statistical probe was used to determine statistical differences?
Line 255: describe the statistical parameters for this result.
Lines 260-261: "...nitrogen sources are sufficient for cell growth, to provide enough osmotic pressure to stimulate erythritol without negative effects, and the optimal carbon..."
Line 291: "Figure 3. Growth kinetics of M. pollinis SP5..."
Line 302: "...medium. The availability..."
Line 262: untreated blastospores; however, only

Lines 318-319: "...produced by M. pollinis SP5 when grewn on MYM media with..."
Line 329: "...the production of erythritol by about 19.3% using Y. lipolytica E326..."
Line 385: "During the initial pH optimization, the media pH was adjusted from 3 to 7 before sterilization..."
Line 418: "...pH 3 can induce Y. lipolytica Wratislavia K1 strain..."
Lines 456-457: "...of molasses on day-3. Treatment 3: Add 25 g/L of molasses and 0.875 g/L of
458 yeast extract on day-2 and day-3."
Lines 474-475: "...Therefore, it was preferable to the other treatments in terms of cost-effectiveness. after both hypotonic treatment and cell destruction."
Lines 502-510: What about the dilution effect produced by feedings?

Q 5 **Is the English language of sufficient quality?**

No.

Q 6 **Is the quality of the figures and tables satisfactory?**

Yes.

Q 7 **Does the reference list cover the relevant literature adequately and in an unbiased manner?**

Yes.

Q 8 **Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)**

Yes.

Q 9 **Are the methods sufficiently documented to allow replication studies?**

Yes.

Q 10 **Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)**

Yes.

Q 11 **Does the study adhere to ethical standards including ethics committee approval and consent procedure?**

Not Applicable.

Q 12 Have standard biosecurity and institutional safety procedures been adhered to?

Not Applicable.

QUALITY ASSESSMENT

Q 13	Originality	
Q 14	Rigor	
Q 15	Significance to the field	
Q 16	Interest to general audience	
Q 17	Quality of the writing	
Q 18	Overall quality of the study