

How to write your first Research Paper and get it published!

International Journal of Dairy Technology

International Journal of
Dairy Technology

SDT Society of
Dairy Technology

WILEY

Aims / Purpose

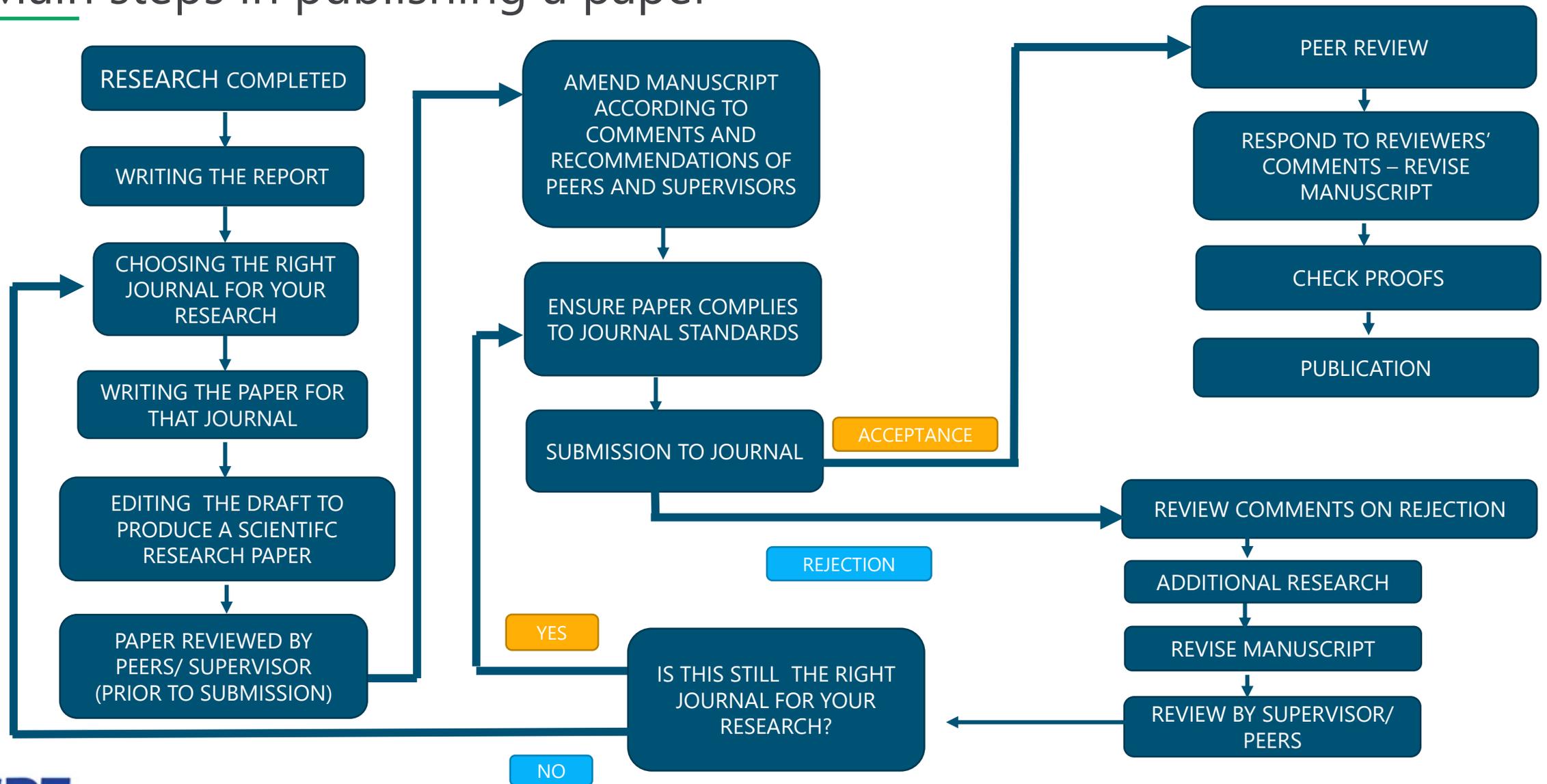
The purpose of this how to guide is to provide first time authors with advice on writing a paper for publication in the IJDT.

The guide will also be helpful to those writing a thesis, research paper or even someone who is used to writing publications.

It is important to remember that when writing an article for publication it is NOT a condensed version of your thesis.

The aim of this guide is to provide tips and reminders on what you should include, why it needs to be included and how to include it!

Main steps in publishing a paper



Why submit to the *International Journal of Dairy Technology*?

- The journal ranks highly among the leading Dairy Journals worldwide!
- There are NO page charges.
- Increasing CiteScore and Impact Factor.
- Rapid decision on whether paper meets journal standards (normally within 5 days after Wiley admin. check)
- Quick publication rates – Median of 91 days from submission to publication in 2020!
- Publishes topics covering fundamental dairy research and practical technological challenges facing the modern dairy industry.

Impact Factor: 1.63

[2019]

CiteScore: 4.2

[December 2020]

The Starting point

WHAT TO CONSIDER?



HOW TO DO IT?

- Is this the right journal for your research?
- Do consult recent issues and ensure your paper been formatted correctly(see slide 18).
- Non-native English speakers – are advised to get someone experienced in writing scientific-English to check English-usage before submission. Alternatively, use a professional editor before submission to the journal.
- Ensure that your paper conforms to the rules, regulations and ethics, in the Country in which you wish to publish.
 - For example, any reference to medical or clinical claims must be approved by relevant health authorities or carefully cited to show claims relate to animal trials only.

Plan your paper – ensure it is logical and contains relevant information. The entire paper should be concise, clear, accurate and logical.

INTERNATIONAL JOURNAL OF DAIRY TECHNOLOGY

Does your research fit into one of these research areas?

- Production of all types of Dairy products
- Advances in Dairy processing and technology
- New Product Development e.g., Dairy foods with added value or possible health benefits
- Quality control and analytical techniques
- Consumer acceptance

Title

A paper with a poor title AND abstract is unlikely to be accepted or read by other academics!

WHAT DOES A TITLE DO?

- Provides clues on the paper's purpose
- Attracts targeted readers



WHAT TO CONSIDER?

- Titles depend on the type of paper you have written
- The title differentiates the paper from other titles
- **Must** engage the reader instantly



HOW TO DO IT?

- Use key words to capture the readers attention
- Be specific and keep it short
- Choose your phrases strategically – a noun phrase, statement or a question (Cargill & O'Connor, 2013)

EXAMPLES

 Effects of added Calcium on salinity tolerance of tomato.

 Calcium addition improves salinity tolerance of tomato.

 Action of antibiotics on bacteria.

 Inhibition of growth of *Mycobacterium paratuberculosis* by streptomycin.

(Source: Cargill & O'Connor, 2013)

Abstract

A paper with a poor title AND abstract makes it very difficult to find reviewers!

WHAT DOES THIS SECTION DO?



WHAT TO CONSIDER?



HOW TO DO IT?

- Provides a condensed version of the paper
- Helps readers including reviewers identify if the paper would be of interest to them
- Covers the purpose of the study and should review important objectives, materials, key results and conclusions

A well-written abstract will include:

1. The objective – background and or the research aim (what was done and why).
2. Information on methods/experimental plan (how was it found).
3. Main findings – with specific data and statistical significance (what was found?).
4. Conclusion and interpretation (what do the findings mean?).

- ONLY 300 words
- Be concise and brief
- Engage the reader
- State the main findings but minimize the quantity of data in the abstract.

6 Keywords
Should be listed after the abstract to enable the paper to be found by others

Example abstracts

Study of Fourier transform near infrared (FT-NIR) spectra of ghee (anhydrous milk fat)

Ghee is chemically complex in nature. The authentication and characterization of edible fats and oils by routine chemical methods are highly laborious and time-consuming. Fourier transform near infrared (FT-NIR) spectroscopy has emerged as the predominant analytical tool in the study of edible fats/oils. In order to assign absorption bands in the infrared (IR) spectrum, spectra of a cow and buffalo ghee samples were acquired in the NIR region (10 000 – 4000 cm⁻¹). In the FT-NIR spectrum a total of nine peaks were obtained for cow and buffalo ghee, which almost equal intensity of absorption. The intensity of absorbance was higher for cow ghee compared to buffalo ghee

Key words: Ghee, Fourier transform near infrared, IR spectra, fatty acid composition.

Source: <https://doi.org/10.1111/1471-0307.12450>

Introducing the 'context' of the research

Briefly mentioning methodology.

Stating what was found.

Key words to describe the article.

Example abstract continued

Comparison of five analytical methods for the determination of peroxide value in oxidized ghee

In the present study, a comparison of five peroxide analytical methods was performed using oxidized ghee. The methods included three iodometric titration viz. Bureau of Indian Standard (BIS) Association of Analytical Communities (AOAC) and American Oil Chemists' Society (AOCS), and two colorimetric methods, the ferrous xylenol orange (FOX) and ferric thiocyanate (International Dairy Federation, IDF) methods based on oxidation of iron. Six ghee samples were stored at 80°C to accelerate methods for analysis as well as flavour score (9 point hedonic scale). The correlation coefficients obtained using the different methods were in the order: FOX (-0.836) > IDF(-0.821) > AOCS(-0.798) > AOAC (-0.795) > BIS (0.754). Thus, among the five methods used for determination of peroxide value of ghee during storage, the highest coefficient of correlation was obtained for the FOX method. The high correlations between the FOX and flavour data indicated that FOX was the most suitable method tested to determine peroxide value in oxidized ghee.

Introducing what the study was about and the methodology

Statistical findings.

Main finding

5 key words to describe the article.

Key words: Ghee, Lipid oxidation, Peroxide Value, Iodometric method, Colorimetric method.

(Source: <https://doi.org/10.1016/j.foodchem.2015.04.023>)

Example abstract continued

Are we closer to understanding why viable cells of *Mycobacterium avium* subsp. *paratuberculosis* are still being reported in pasteurised milk?

Mycobacterium avium subsp. *paratuberculosis* (MAP) continues to be associated with Crohn's disease. Following work in the 1990s that suggested that statutory pasteurisation of milk (72 °C, 15 s) was insufficient to destroy MAP, the UK Dairy Industry increased the holding time to 25 s. Since then, some plants have increased the lethality of pasteurisation further with a number using 78 °C for 27 s. Despite the increase in lethality, a recent survey of pasteurised milk in England found that 10.3% of pasteurised milk samples tested positive for viable MAP. This article discusses the significance of MAP and why viable MAP might be found in pasteurised milk.

Key words: *Mycobacterium avium* subs. *paratuberculosis*, Crohn's disease, HTST pasteurisation, phage amplification

(Source: <https://doi.org/10.1111/1471-0307.12617>)

Introducing the background to the review.

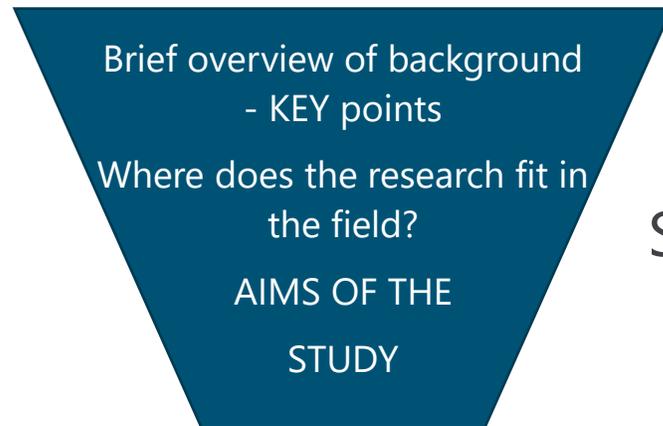
Purpose of review.

Key words to describe the article.

Introduction

✓ WHAT TO DO? ✓

- Keep it simple and logical
- Introduce with purpose – summarizing the context of the study and why the research was carried out
- Include only concise and meaningful background information
- Citations used must be of benefit and add value.
- End the introduction with the research aim OR hypothesis. This should be concise and effective to attract attention of the reader

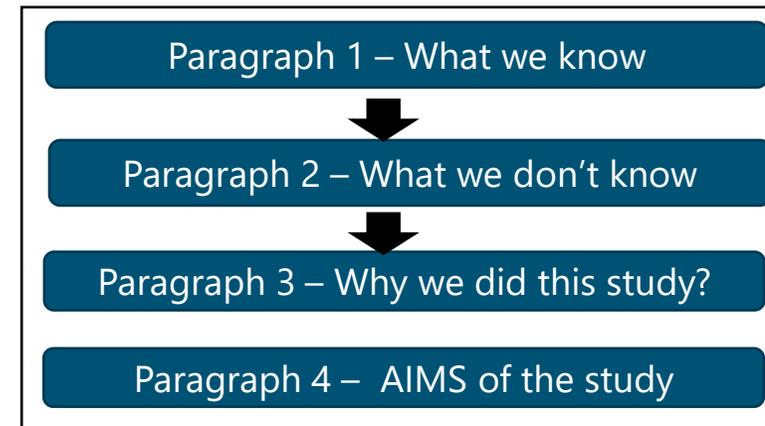


EXAMPLE STRUCTURES

Why did you start? (Peat *et al.*, 2002)

✗ WHAT NOT TO DO? ✗

- Avoid unnecessary long paragraphs – see below for example templates for paragraphs in the introduction
- Do NOT waste words on unnecessary context – it is NOT your entire literature review!



(Source adapted from: Peat *et al.*, 2002)

Figure 1 – Example template for the introduction

Example introduction

This example looks at the first two paragraphs of the introduction, followed by the very last paragraph to provide an example of how an introduction could be started and how to finish on the objective or aim of the study.

Introducing the context of the study by starting with the "big picture, of yoghurt generally.

Source: <https://doi.org/10.1111/1471-0307.12717>

Per capita yoghurt consumption has increased in the last three decades due to its nutritional value and associated health-promoting properties. Yoghurt contains nutrients with high biological value such as proteins, vitamins (A, B2 and B12), minerals (calcium, phosphorus and potassium) and essential fatty acids. In addition to these valuable components, yoghurt is also safe for lactose-intolerant consumers (Aryana and Olson [2017](#)). Furthermore, yoghurt is considered a healthy dairy product due to its lactic acid bacteria content, which can promote a healthy intestinal tract, enhance the immune system, protect against pathogens, and could reduce the risk of specific types of cancer. Many food technologists have studied the addition of probiotics, prebiotics and plant extracts to produce specific types of yoghurt called symbiotic or bio-yoghurt (Hadjimbei et al. [2020](#); Khaledabad et al. [2020](#)).

Beginning to narrow down to the yoghurt the study is focusing on.

Concentrated yoghurt, or Greek-style yoghurt (GSY), is defined as a semisolid fermented milk. It is estimated that GSY accounts for 50% of the total yoghurt market in the United States, with a projected growth of about 5% in the upcoming years (Das et al. [2019](#)). Traditionally, GSY is produced by straining the yoghurt after fermentation using cloth bags, which releases whey and increases the solid content. GSY usually contains 6.4–10.7 % fat, 8.2–10.4 % protein and 2.8–4.9 % lactose, though its final composition will mainly depend on the manufacturing method. For instance, the concentration of solids could be increased by using membrane-based technologies, centrifugation, desorption, or with the direct addition of milk protein powders and/or stabilising agents (Costa et al. [2019](#)). These technologies can be applied prior or after fermentation.

The final paragraph, summarizing the information on the research gap.

Yoghurt is a widely accepted dairy product listed as a healthy food, which makes it suitable for exploring new alternatives with fat replacers that could mimic the mouthfeel and reduce physicochemical changes. In this study, the incorporation of GMP as a fat replacer in GSY to improve its physicochemical and sensory properties was evaluated, so, consumer acceptance of products undergoing a significant reduction of saturated fat can be maintained. Therefore, the objective was to evaluate the effect of using glycomacropeptide (GMP) as a fat mimetic on the physicochemical properties and sensory shelf life of a fat-reduced Greek-style yoghurt

Ending on the **OBJECTIVE** of the study.

Materials and methods

What did you find? (Peat *et al.*, 2002)

WHAT DOES THIS SECTION DO?



WHAT TO CONSIDER?



HOW TO DO IT?

- This section must outline - how the problem was studied.
- Answer what methods were used and why?

- REPRODUCIBILITY
- REPEATABILITY
- 'FAIR' Data (Findable, Accessible, Interoperable, Reusable)

- Identify ...
 - Methods – if novel then in detail
 - Equipment
 - Frequency of observations
 - Precise measurements
 - Statistical tests
 - Ethical Consideration

For Example – making cheese – has the following been considered?

- Have enough batches been made to be representative?
- At different lactation stages?
- Diet of the lactating mammal.
- Seasonality
- Processing methods

REPEATABILITY
Has the research been based on assessing several replicates in order to achieve a good representation of the process?

REPRODUCIBILITY
Research able to be replicated by other laboratories and researchers

✗ WHAT NOT TO DO? ✗

- Don't be overly repetitive
- Avoid talking about the pros and cons of other methods
- Avoid talking about the results you found

A NOTE ON EXPERIMENTAL REPLICATION

Authors are responsible for explaining how their experimental work was replicated and that the number of replications is scientifically valid. The editorial team and reviewers will return or reject manuscripts where it is not clear how many replications of the main experiment (s) has/have taken place.

It is not sufficient to demonstrate a high degree of statistical relevance using a factorial, response surface methodology or other experimental design if relevant factors have been omitted e.g. seasonality and/or the limitations of the omissions have not been discussed.

During the initial consideration of whether replication meets the Journal standards for a research article a decision will be made on whether 12 of 15 degrees of freedom should be applied (Anonymous 2012) and the number of trials/variables studied will then be used to obtain an independent estimate of the replication required.

Experimental work that has been undertaken without significant replication e.g. to test a concept or a pilot study should be submitted as a Short Communication.

Results

WHAT DOES THIS SECTION DO?

- States what you have found.
- Shows the relationships between variables and correlations
- Information in the results directly relates to **understanding of the research objectives** and **conclusions**



WHAT TO CONSIDER?

- Information provided on methods and results must enable the reader to evaluate the study and reach their own conclusions



HOW TO DO IT?

- Present results clearly
- Be concise
- Using the minimum AND only **essential** figures and tables
- Statistical significance results

WHAT NOT TO DO?

- Don't be overly repetitive
- Don't include irrelevant material that will not be explained later in the discussion
- Don't compare results to others in the field (that's in the discussion!)

FIGURES , TABLES AND ILLUSTRATIONS

- Any figure, table or illustration must have a legend (title) and be numbered in consecutive order.
- Must be clear and understandable without reference to the text..
- Only use ones that add value to the research.
- Titles, axis should be clear and readable. Keep abbreviations to a minimum.

SUPPLEMENTARY FILE

- Supplementary material including raw data is increasingly being required . **This is compulsory for some journals.**
- Restricted to materials that are specifically identified in the manuscript and do not have to be understandable without reference to the manuscript.
- May include some additional references

Discussion

WHAT DOES THIS SECTION DO?

- Answers - WHY was the work done?
- Explain your main findings



WHAT TO CONSIDER?

- HOW do the results compare to other studies – critical analysis of own research paper and others.



HOW TO DO IT?

- Be concise and informative
- Discuss the significance of your results
- Highlight the research contribution to the field and potential for further research
- Emphasize new findings
- Describe strengths and weaknesses of study

✗ WHAT NOT TO DO? ✗

- Don't just repeat the results
- Don't just ignore papers where their results contradict yours INSTEAD explain differences.
- Avoid using jargon

Provide a take home message

Clearly state the paper's impact

Combining results and discussion sections

There is opportunity for some research papers to have the results and discussion section combined. If that suits your research, then here are some points to consider.

Reviewers expect to see significant analysis and discussion of results. Combining the results and discussion sections works best for papers with only a small number of tables or figures.

Separate results and discussions sections generally works better for papers containing extensive findings and dealing with complex concepts.

Conclusion

WHAT DOES THIS SECTION DO?



WHAT TO CONSIDER?



HOW TO DO IT?

- A conclusion should recap and reiterate what you have found and the importance of the research.
- In a review the conclusion can be suggestions for further/ future research.

- Consider future work or improvements.

- Be concise
- Clearly state how the results meet the research aims
- Note the limitations in the research

X WHAT NOT TO DO? **X**

- Do not repeat the abstract or the results
- Do not just restate the research aim, **INSTEAD** explain how you reached it

Provide a take home message

Clearly state the paper's impact

Reviews

A review should link together the relevant work that has been previously published and provide in-depth discussion of the topic area. In a good review the authors coherently and critically summarize the existing work in a self-consistent framework and add their own thoughts and insights. This adds value to the topic. Many reviews submitted to the IJDT miss these characteristics and just state a list of findings from individual research work that has been previously published. Discussion on recent developments and or the research gaps is required. The review also needs to be well structured, logical and coherent.

Basic formatting

Ensure correct use of the English language and correct grammar.

Manuscripts

- Must be in an editable format
- Double line spacing
- Wide margins
- Line numbering use one continuous number set throughout the paper

Word count – 3,000 – 5,000 words (NO more than 10,000)

[Included in the word count: abstract; introduction; methods; results; discussion; acknowledgements; table titles; and figure legends].

Species Nomenclature –Microorganisms must be named by their formal names in italics. The full name must appear in the abstract and at first use at the beginning of the paper before using abbreviations later.

Foot notes should be avoided

Trade names must have capital letters

Manufacturers and suppliers of materials or equipment must be stated with names and addresses given.

Abbreviations should be avoided. If essential, the full name should be stated first

Only use SI units.

Referencing – keep to essential citations only. Generally, limit to < 25 KEY references

- Harvard Style – see - <https://onlinelibrary.wiley.com/pb-assets/IJDT%20Harvard%20Referencing-1526308934970.pdf>
 - For Example: Kucukoner E and Haque Z U (1998) Peptide profile of low-fat Edam cheese. Turkish Journal of Veterinary and Animal Sciences 22 449-452.

Further reading...

Anonymous. (2012). Design and analysis of efficacy evaluation trials. EPPO Bull. 42:367–381.

Cargill M and O'Connor P. (2013). Writing Scientific Research Articles: Strategy and Steps. 2nd ed. Chichester: Wiley-Blackwell.

Elsevier. (2021). 11 steps to structuring a science paper editors will take seriously. [Online] Elsevier. Available from: <https://www.elsevier.com/connect/11-steps-to-structuring-a-science-paper-editors-will-take-seriously>.

Peat, J, Elliot E , Baur L and Keena V. (2002). Scientific Writing: easy when you know how. London: BMJ Books.

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ABOUT THE AUTHORS AND THE IJDT

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