



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	European Journal of Nutrition & Food Safety
Manuscript Number:	Ms_EJNFS_49294
Title of the Manuscript:	Comparative evaluation of antioxidant potential in thermally processed, underutilized food grains of the Himalayan region
Type of Article:	Experimental design

PART 2:

FINAL EVALUATOR'S comments on revised paper (if any)	Authors' response to final evaluator's comments
<p>1- Reviewer does not agree with the interpretation of the authors. When was related that the analytical methods and assays are quite "routine" which make the accuracy of this paper questionable. This reviewer does not refer to "every precaution has been taken to ensure accuracy of estimations. The authors are sure about the results obtained through photometric analysis", as described by the authors. There are several limitations of photometric methods in (poly)phenol analysis. It is known that Folin-Ciocalteu assay is not specific to phenolic compounds as it reacts with sodium bisulphite, reducing sugars, ascorbic acid, some transition metals and reducing amino acids (tryptophan and tyrosine), skewing the real value of Total Phenolic Compounds in the sample. In addition, taking into consideration the Folin-Ciocalteu's phenol reagent reacts with those non-phenolic substances that are able to reduce the Folin-Ciocalteu reagent, this assay has been denominated as 'Folin-Ciocalteu reducing capacity' and as the reaction occurs in aqueous medium, it measures the reducing properties of water-soluble substances present in the extract.</p> <p>2- Reviewer does not agree with the interpretation of the authors. It is clear that objective of the research was comparative evaluation of antioxidant potential in thermally processed, underutilized food grains of the Himalayan region. When this reviewer related that "authors should include some investigations on physical or chemical properties such as proximate composition, tannins, anthocyanins and individual phenolic compounds." This reviewer reports that in order to evaluate and compare the antioxidant potential in underutilized heat processed foods, it is necessary to include more parameters to confirm the antioxidant potential of the grains studied. This does not mean changing the purpose of the manuscript. Several in vitro and in vivo trials have shown that the regular (daily basis) moderate consumption of vegetables, such as grains and cereals allied to a balanced diet and beneficial health habits positively contribute to the antioxidant, cardioprotective, antithrombotic, anti-inflammatory and antitumor effects. These activities are mostly associated to the phenolic composition, especially to the classes of flavonoids (anthocyanins, flavonols, and flavanols), stilbenes (cis and trans-resveratrol), hydroxycinnamic and hydroxybenzoic acids (ferulic, syringic, caffeic, protocatechuic, vanillic, and gallic acids).</p> <p>3- Reviewer does not agree with the interpretation of the authors. When was related that "the results and discussion appears to be descriptive rather than mechanistic, which leaves this reviewer with the impression that scientific depth is missing." This reviewer does not refer to the objective of the study and nor about on the depth of the discussion. It is already well referenced in the literature that phenolic compounds are secondary metabolic products of plants derived from</p>	



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phenylalanine, which is delaminated to cinnamic acid and tyrosine, and some hydroxyl groups are added on the phenyl ring forming the different types of phenolic compounds. In nature, these compounds are in free form or are bound to sugars and proteins, forming some groups: flavonoids (isoflavonoids, anthocyanidins, flavanols, flavonols, flavanones, and flavones) and nonflavonoids (hydroxycinnamic and hydroxybenzoic acids, stilbenoids, lignoids, and coumarins). From the analytical standpoint, phenolic compounds may be identified and quantified by using different methodologies and equipment, such as high-performance liquid chromatography (HPLC) coupled with diode array or fluorescence detectors, liquid chromatography coupled with mass spectrometry (MS), LC-time-of-flight-MS (LC-TOF-MS), liquid chromatographic-hybrid quadrupole time-of-flight mass spectrometric targeted analysis, HPLC-DAD-MS/MSn. Another interesting application of chromatographic methods is related to the measurement of the antioxidant activity using HPLC.

- 4- This paper in several aspects is not enough informative, thus, at its current form, does not meet the criteria for novelty and also not is scientifically robust and technically sound.

Reviewer Details:

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