



**SDI FINAL EVALUATION FORM 1.1**

**PART 1:**

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| Journal Name:            | <a href="#">American Journal of Experimental Agriculture</a>                                                        |
| Manuscript Number:       | 2014_AJEA_12445                                                                                                     |
| Title of the Manuscript: | Nutrients Metabolizability of Nectar for Long-Term Maintenance of Hummingbirds and Effect of a Dietary Fibre Source |

**PART 2:**

| FINAL EVALUATOR'S comments on revised paper (if any)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Authors' response to final evaluator's comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <p>The manuscript <b>Nutrients metabolizability of nectar for long-term maintenance of hummingbirds</b>, submitted to <b>American journal of experimental agriculture</b> to be considered for eventual publication describes a new soluble diet for hummingbirds kept in captivity. I recently revised this manuscript but its quality is only poorly improved, and compared to the previous submission, it still has many faults.</p> <p>- The different parts of the manuscript are not balanced, <b>Discussion</b> is more than 1/3th of the all the pages (36). This part is verbose and contains too many quotations, which are not always necessary. Some parts are too speculative, such as lines: 297 – 309; 336-342; 354 – 360; 417 – 424. Moreover, the difference of the proposed artificial nectar in respect to others by different authors is not clear.</p> | <p>We found your suggestion very helpful and we sincerely thank you for the time you spent in revising our paper.</p> <p>The Discussion is commonly considered a relevant part of a scientific paper, and it seems difficult to establish a general rule, which states or suggest how long it has to be with respect to the other parts of the text. The differences among the proposed formulation are in two issues, which are explained in lines 44-65 and in first part of discussion (Nectar formulation). The objective was to consider the existing knowledge and results which should guarantee an adequate intake of an artificial nectar offered in an appropriate DM concentration. Additionally, the nectar should contain the proper quantity and quality of ingredients to satisfy in meantime the identified and suggested nutritive requirements and preferences in terms of sugars, protein, fat and energy of captive hummingbirds. The other aspect of nutritional relevance is to assess the part of nutrients and energy contents, which are available to metabolism. In fact, the metabolizability of each nutrients depends on many factors - the DM intake, the quantity and quality of the ingredients and/or the amount of single nutrients - and is the result of associative effects. Few experiments were conducted to evaluate, at the same time, the metabolizability of some nutrients and energy. We have not found any other experiment where the metabolizabilities of sugars, protein, fat, mineral, NDF and energy were simultaneously evaluated. In the first part of the discussion, we have considered the main results and issues, selected among a larger set, which seemed us more relevant to support the formulation of a complete artificial nectar. We, as nutritionist, convincingly believe that a critical and updated review on ingredients and nutrients to consider for the formulation of complete diets (to raise, maintain and breed hummingbirds in captivity) represents a preliminary pertinent support to address the nutritional choices. Apart from the review of Peaker (Peaker M. - Nutritional requirements and diets for hummingbirds and sunbirds. Int. Zoo Yb. 1990;29:109-118) we have not found any other similar and possibly more updated paper to use simply by citing the Author, but only some, on a definite nutrient - i.e. protein or sugars -, which have been cited.</p> |



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| <ul style="list-style-type: none"> <li>- Materials and Methods lacks some details, as the type of pollen used to add to this artificial nectar. The pollen used for human consumption in Europe is collected by bees from Spanish <i>Cistus</i> sp. Pollen has an insoluble part so this artificial nectar is not a fluid, but a fluid plus pollen.</li> <li>- The manuscript contains some statements without the necessary quotations as lines: 40 after arthropods; 72 after chitin; 277 after energy; 367 after pollination.</li> <li>- Lines 211 and 212, if hummingbirds eat pollen and the described artificial nectar contains pollen, it means that this is another source of soluble carbohydrates. Pollen and nectar contain soluble carbohydrates, amino acids and soluble proteins, but those contained in the nectar can be absorbed</li> </ul> | <p>Because of his/her competence, the peer reviewer knows most of the information given and chosen from a much larger list (about 350 items), but this is not true for other possible readers. In addition, some data are not directly available, but can be tentatively identified considering different and/or partial contributions.</p> <p>(Lines 297 - 309) - It is simply an abridged report of the few information we have found on arthropods composition and digestion by hummingbirds.</p> <p>(Lines 336 - 342) - On fat - As reported, some Authors have considered it appropriate to add oil to the artificial nectar, but without indicating the relative needs of hummingbirds and provide data on the digestive or metabolic efficiency of added fat. According to the existing knowledge on foraging of free living hummingbirds - for example the increase of consumption of arthropods before migration, in order to increase the energy reserves in the body -, it appears that arthropods can be the main, if not the only, source of dietary fat. Therefore (Lines 354 - 360), with reference to the trials reporting records on arthropods intake, we tried to have an indication of the magnitude of ingestion of fats that may result. The indicative values we have reported, roughly account for the fat intake we measured (lines 510 - 516). However, as the peer reviewer considers inappropriate this attempt, we have eliminated the sentence.</p> <p>(Lines 417 - 424) - We have eliminated the sentence</p> <p>We have reconsidered the discussion eliminating or modifying, where possible, some sentences.</p> <p>We have changed the text specifying the pollen we used. Unfortunately, it is defined only as "biological flower's pollen" (line 134).</p> <p>We had yet reported that some ingredients, or part of them, were not soluble now we have added also "insoluble" and we have rewritten the sentence (lines 103 and 104). In addition, we had indicated that an amount of carbohydrates and fiber was made from other added ingredients, such as pollen (lines 148 - 150; 277 - 278).</p> <p>Because we have added 2.5 % of oil, it is evident that the artificial is not only a suspension, but also an emulsion.</p> <p>(40) Arthropods - references were added</p> <p>(72) - Chitin: That arthropods' body contains chitin is common, but the amount of chitin contents of insects until now was poorly investigated. Nevertheless, we have modified the text adding few sentences and some citations to give a clearer description of the characteristics and of the digestion of chitin, and chitosan.</p> <p>(277, now 304) - Energy: the citation has been reported at the beginning of the sentence.</p> <p>(367) References were added</p> <p>(Lines 211 and 212) We agree, In fact we reported the content of main nutrients after chemical analysis of nectar. The contribution of pollen (4.6%) to protein and carbohydrates contents of artificial nectar is then included into crude protein, NDF and NFE. The soluble components released after rehydration were much probably digested; part of the remainder (protein and NDF) were recovered in the droppings as it is explained at line 169. To measure the pollen digestibility it is necessary to feed hummingbirds with a diet based on a greater amount of pollen. This objective, if feasible, is out of the scope of this experiment, we did not find any other research, apart from what was cited, on pollen consumption and digestibility by hummingbirds.</p> |
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| <p>immediately because of dissolved in water, whilst those of pollen are digested in other parts of the digestive tract and only after a complete rehydration.</p> <p>- From this manuscript it is clear that authors do know the recent knowledge of pollen and nectar biology.</p> | <p><b>We agree. We are not experts of flowers pollen and nectar. As nutritionists, we look at pollen as possible and useful ingredient of an artificial nectar. So that, we have reported the information and the available references related to the ingestion and digestion of pollen by hummingbirds.</b></p> |
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