

Response to authors Comments

In this paper, that is well written and easily readable, authors describe the main botanical, physical, chemical and metabolomic characteristics of the new genotype GH3, a natural hybrid of the wild *V. adenoclada* grapevine. The topic covered in the paper is in line with one the main objective of Sustainable Viticulture, as is the introduction of new varieties, characterized by both good quantitative and qualitative characteristics and source of resistance against abiotic and biotic adversities. However, in my opinion, the paper has different disadvantage that makes it not publishable in a scientific journal as Agronomy. In particular:

Point 1: Authors detected parameters, such as berry fresh weight, total soluble solids (TSS) content, pH, titratable acidity, color indices (paragraph 2.3) and metabolomic components of berries (paragraph 2.4), during a single year of experimentation. Since the expression these parameters, unlike the botanical ones, is strongly influenced by the environmental component, their appropriate evaluation requires repeated experimentation over time (minimum two years).

Response 1:Physical and chemical indexes are indeed greatly affected by environmental factors. Some research in the field of cultivation has been repeated for many years(minimum two years). GH3 as a new germplasm of *V. adenoclada* Hand.-Mazz grape, we have also observed fruit quality indicators for many years. But in previous years, all the experimentation were focused on the fruits from the harvest stage, there is no systematic monitoring of several developmental stages. In the present research, we collected grape berries in three biological replicates in five E-L stages. Thus, berry fresh weight, total soluble solids (TSS) content, pH, titratable acidity, color indices could be detected at different developmental stages. In addition, the focus of this study is to demonstrate the characteristics of GH3 without other field treatments or comparison of multiple varieties. So we used a single year of environmental data.

Response 1: If the authors have results regarding the physical, chemical and metabolomic data regarding the new GH3 genotype (even if focused at the harvest stage) , obtained in years prior to the one described in the paper, I suggest to include them. For example, authors could describe the activities carried out in previous years in a new paragraph of the section "materials and methods" and report the table of results in the Supplementary materials. In this way, a reader is able to understand how the selection of the new grapevine genotype GH3 was based on observations repeated over time that confirmed its goodness. Finally, I have not fully understood the last two sentences made by the authors: " In addition, the focus of this study is to demonstrate the characteristics of GH3 without other field treatments or comparison of multiple varieties. So we used a single year of environmental data". Even if the goal of a experimentation is to demonstrate the characteristics of a new genotype (with or without treatments, etc.) by using physical and chemical index, that are strongly influenced by environment, several years of observation are useful.

Point 2: As stated in the previous point, the chemical and metabolomic parameters considered by authors are strongly influenced by the environmental and cultivation conditions. Therefore, in my opinion, a more useful approach would have been to compare this different parameters detected both on the genotype GH3 and its parent of *adenoclada* in the same site of cultivation. In this way, the authors could have better discuss any differences and highlight the improving aspects of the new genotype compared to the parental.

Response 2:As the reviewer suggested, we could better elucidate the advantages of the variety as a new genotype compared to the parental. However, as we mentioned in the

introduction, we do not know accurate female parent of GH3. In 2011, the natural hybrid seeds of five lines of pistillate flower of *V. adenoclada* Hand.-Mazz grape, such as Shuiyuan No. 1, Shuiyuan No. 11, Jiulong No. 1, Cotton No. 5, and Lile No. 6, were mixed and seeded together in the Shuiyuan wild grape base in Luocheng county, and 139 seedlings were planted in an open field. Thus, the father of natural pollination is unknown.

Response 2: in their manuscript the authors introduce the GH3 as a new grapevine genotype of *V. adenoclada*, with different characteristics that are better than the known parent. Therefore, in my opinion the authors in the Discussion section should have compared the main characteristics of the new genotype GH3 with those of the only known parent and/or other wild grapevine species, cultivated in the same environmental (southern China).

Point 3: Introduction – lines 57-65: authors report that the new grapevine genotype GH3 is particularly adaptable to the climatic conditions of southern China. My question is: where do these considerations come from? From a previous experimental activity? If yes, I suggest to the authors to report the bibliographic references, in the same way as for *adenoclada* at lines 66-69.

Response 3: GH3 belongs to *V. adenoclada* Hand.-Mazz grape, so it has some characteristics of the species, such as Adapt to the southern climate conditions, suitable for cultivation in karst mountainous areas, etc. As the reviewer suggested, we have added some relevant references.

Response 3: I have no further comments

Point 4: Material and method: the authors do not describe the statistical approach used for the analysis of the results.

Response 4: Because there was no ‘statistical approach’ part in agronomy template. But we have added ‘Statistical analysis’ as 2.5 in Materials and methods now in revised manuscript.

Response 4: I suggest to eliminate the last sentences, line 149

Point 5: Results - Paragraph 3.1.3: authors report as results some characteristics of the new grapevine genotype GH3, related to their resistance against biotic and abiotic adversities. However in the section “Materials and Methods” authors did not describe the methodology used to evaluate these resistance/tolerance characters. For example, the phenotypic evaluation of resistance to biotic disease (such as anthracnose, grey mold, powdery mildew, etc.) can be performed by scoring the presence or absence of visible symptoms in the phenological phases in which the plant is more susceptible to infection and by using specific index in order to evaluate the severity of disease. What emerges from reading the paper is that these phenotypic characters have been detected through simple observation, which does not represent a correct scientific approach.

Response 5: We admit that this part of the content is not supported by data, just through field observation. Results - Paragraph 3.1.3: Stress Resistance There should be corresponding data support and method introduction as the research results. We have the following explanations: 1. Investigation of disease resistance is not the focus of the present study. We just introduced briefly the characteristics of GH3. 2. GH3 as a new germplasm of *V. adenoclada* Hand.-Mazz grape, there is a lot of research that has not been done yet. We are in the process of conducting detailed disease resistance tests. If the reviewer and editor agree to delete this part of the content, we also agree.

Response 5: because the authors are in the process of conducting detailed disease resistance test, I suggest to this part of the content

Point 6:Results – Paragraph 3.3: authors describe some techniques for the cultivation and management of the new grapevine genotype GH3, without reporting any results deriving from experimental activity. In my opinion this paragraph should be integrated in the Introduction (for example between lines 57 and 65), by reporting specific bibliographic references.

Response 6:Results – Paragraph 3.2: Although we do not report any results deriving from experimental activity of techniques for the cultivation and management, this was indeed part of the study, especially since this is the first time the variety might have been publicly reported. We ask the reviewers to consider allowing us to retain Paragraph 3.2 in results

Response 6: In my opinion, a simple description of the cultivation techniques, that can be adopted for the management of a specific variety of grapevine, cannot be considered as a result of an experimental work. If the different techniques described in the paragraph 3.2 have been used by the authors for the management of their experimental field, they can insert this paragraph in the section "Material and Methods"

Point 7: The name of a species must be reported in its complete form (e.g. *Vitis adenoclada* Hand-Mazz.) only the first time; subsequent times it must be reported in its abbreviated form (e.g. *adenoclada*) – a general check throughout the document is recommended

Response 7:We have already modified them in modified manuscript.

Response 7: I'm sorry; there was an error when I copied my comments at the first step of the review. So I rewrite the comment n. 7 in their correct form: "The name of a species must be reported in its complete form (e.g. *Vitis adenoclada* Hand-Mazz.) only the first time; subsequent times it must be reported in its abbreviated form (e.g. *V. adenoclada*) – a general check throughout the document is recommended"- this comment is also valid for the scientific names of the other varieties reported in the paper and not only for the *V. adenoclada*.

Point 8:Line 58: remove the sentence "is highly adaptable"

Response 8:We have already removed the sentence "is highly adaptable". Line 58-59

Response 8: I have no further comments

Point 9:Line 94: probably is "Brix start increasing"

Response 9:We have already modified them in modified manuscript. Line 96

Response 9: I have no further comments

Point 10:Line 101: replace the sentence "in the harvest stage" with "at the harvest stage"

Response 10:We have already modified them in modified manuscript. Line 105

Response 10: I have no further comments

Point 11:Check the bibliographic reference n. 6, probably the title is not correct.

Response 11:We have checked the bibliographic reference n. 6, and not clear which reference the reviewer refers to.

Response 11: I refer to the following reference: "Li, H.X.; Chen, H.; Wang, Z.; Zhong, X.H.; Wang, X.R.; Liu, K.Y. Observation and study on agronomic characters of new type of *Vitis adenoclada* Hand.-Mazz. Northern Horticulture 2018, 12, 63-67." - on the website of Northern Horticulture is reported the following title: "A Survey Study on the New Types of Agronomic Characteristic of *Vitis adenoclada* Hand.-Mazz"

