

## Rebuttal on Identification of Two Triterpenoids in Solid Wastes from Olive Cake

*Sir:* *Alpechin* and *alpeorujo* are the wastewaters and semisolid wastes resulting from pressing olives to obtain olive oil through different procedures. We have carried out sequential fractionation of *alpechin* and *alpeorujo* by using solvents of increasing polarity. After column fractionation of each of the extracts, we detected almost 500 different peaks with gas chromatography of the different fractions. GC/MS,  $^1\text{H}$  NMR, and  $^{13}\text{C}$  NMR data were obtained for a number of purified products. Taking into account the references cited by Bianchi, other references, and our own results, we believe that no more than 50–100 compounds have been unequivocally identified in these wastes. This makes at best just 10–20% of the total products in the wastes. In our opinion, knowledge of the chemical composition of *alpechin* and *alpeorujo* is very limited; therefore, we stand by our statement that the composition of wastes resulting from pressing olives to obtain olive oil is practically unknown. Dr. Bianchi would agree that lack of detailed knowledge of the composition of the wastes is the major problem in evaluating biotreatment of *alpechin* and *alpeorujo*.

Typical olive oil fatty acids are no doubt present in *alpechin* and *alpeorujo*. These fatty acids are the result of limited recovery of all fatty acids present in olives upon extraction treatment. It is trivial that our comment in the text was confirmatory of an expected finding. However, what was not trivial was the detection of triterpenoid signals in these wastes, which we report for the first time in our paper. That we are the

first to detect methyl  $3\beta$ -acetoxyolean-12-en-28-oate and methyl  $2\alpha,3\beta$ -diacetoxyolean-12-en-28-oate in solid wastes from olive pressing is irrefutable. The fact that these compounds are present in the cuticle of olive fruits does not mean that they will also be present in the wastes. Dr. Bianchi should take into account that products in semisolid wastes and *alpechin* undergo oxidation and other modifications during storage, and therefore compounds that are found in olive fruits are not necessarily present in the wastes. However, compounds in the wastes may be the result of the chemical modification of chemicals originally present in the olive fruits (Gil et al., *Phytochemistry*, in press). Should Dr. Bianchi agree that our mono- and bidimensional NMR analyses for the above two compounds published in *J. Agric. Food Chem.* are correct, that our data in the same paper by Gil et al. provide a meticulous assignation of all  $^1\text{H}$  and  $^{13}\text{C}$  signals for the two compounds, and that our data correct previous findings on these compounds, then our modest contribution to the chemistry of these olean compounds should be recognized in the future.

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