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Biochemical and Immunochemical Evidences Supporting the Inclusion of Q

Manuscript text

To date, the only acceptable therapeutic approach for celiac disease (CD) is a strict elimination from the diet of gluten-containing foods, but this diet does not always guarantee an adequate nutritional intake. Pseudocereals are receiving considerable attention as interesting alternatives for the formulation of gluten-free products, and quinoa grains arise as nutritive substitutes of conventional cereals. The aim of this work was the characterization of different quinoa samples corresponding to 11 quinoa varieties using polyacrylamide gel electrophoresis in the presence of sodium dodecyl sulfate (PAGE) and immunoblotting techniques to assess their suitability for celiac subjects. All the quinoa varieties were grown in Italy to assess if the reproduction in a new habitat can guarantee the retention of the "safe" protein pattern. None of the quinoa varieties presented protein bands with electrophoretic mobility comparable with those of wheat gliadins, the toxic protein for celiac subjects. All the quinoa samples showed a low affinity for both specific anti-gliadin antibodies and IgAs from celiac subjects, confirming that quinoa can be considered as a safe ingredient for celiac patients. However, relevant varieties should be previously selected since the immuno cross-reactivity with anti-gliadin antibodies can vary significantly.

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Biochemical and Immunochemical Evidences Supporting the Inclusion of Quinoa (*Chenopodium quinoa* Willd.) as a Gluten-free Ingredient (5)

(6)

Authors [Authors and affiliations](#)

Elena Peñas, Francesca Uberti, Chiara di Lorenzo, Cinzia Ballabio, Andrea Brandolini, Patrizia Restani

Original Paper
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Abstract (7)

To date, the only acceptable therapeutic approach for celiac disease (CD) is a strict elimination from the diet of gluten-containing foods, but this diet does not always guarantee an adequate nutritional intake. Pseudocereals are receiving considerable attention as interesting alternatives for the formulation of gluten-free products, and quinoa grains arise as nutritive substitutes of conventional cereals. The aim of this study was the characterization of different quinoa samples corresponding to 11 quinoa varieties, using polyacrylamide gel electrophoresis in the presence of sodium dodecyl sulfate (SDS-PAGE) and immunoblotting techniques to assess their suitability for celiac subjects. Some of these varieties were grown in Italy to assess if the reproduction in a new habitat can guarantee the retention of the “safe” protein pattern. None of the quinoa varieties studied presented protein bands with electrophoretic mobility comparable with those of wheat gliadins, the toxic protein for celiac subjects. All the quinoa samples showed a low binding affinity for both specific anti-gliadin antibodies and IgAs from celiac subjects, confirming that quinoa can be considered as a safe ingredient for celiac patients. However, reliable varieties should be previously selected since the immuno cross-reactivity with anti-gliadin antibodies is not negligible.

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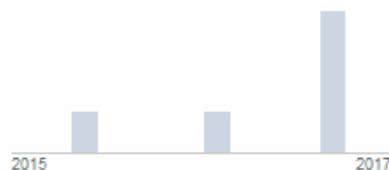
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Although existing simulation tools can be used to study the impact of agricultural management on production activities in specific environments, they suffer from several limitations. They are largely specialized for specific production activities: arable crops/cropping systems, grassland, orchards, agro-forestry, livestock etc. Also, they often have a restricted ability to simulate system externalities which may have a negative environmental impact. Furthermore, the structure of such systems neither allows an easy plug-in of modules for other agricultural production activities, nor the use of alternative components for simulating processes. Finally, such systems are proprietary systems of either research groups or projects which inhibits

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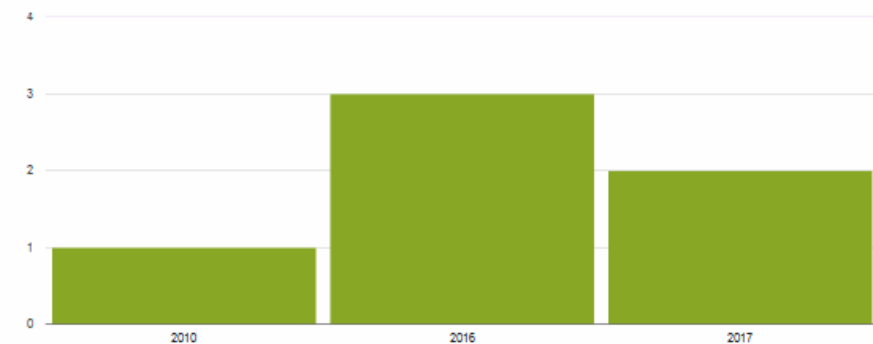
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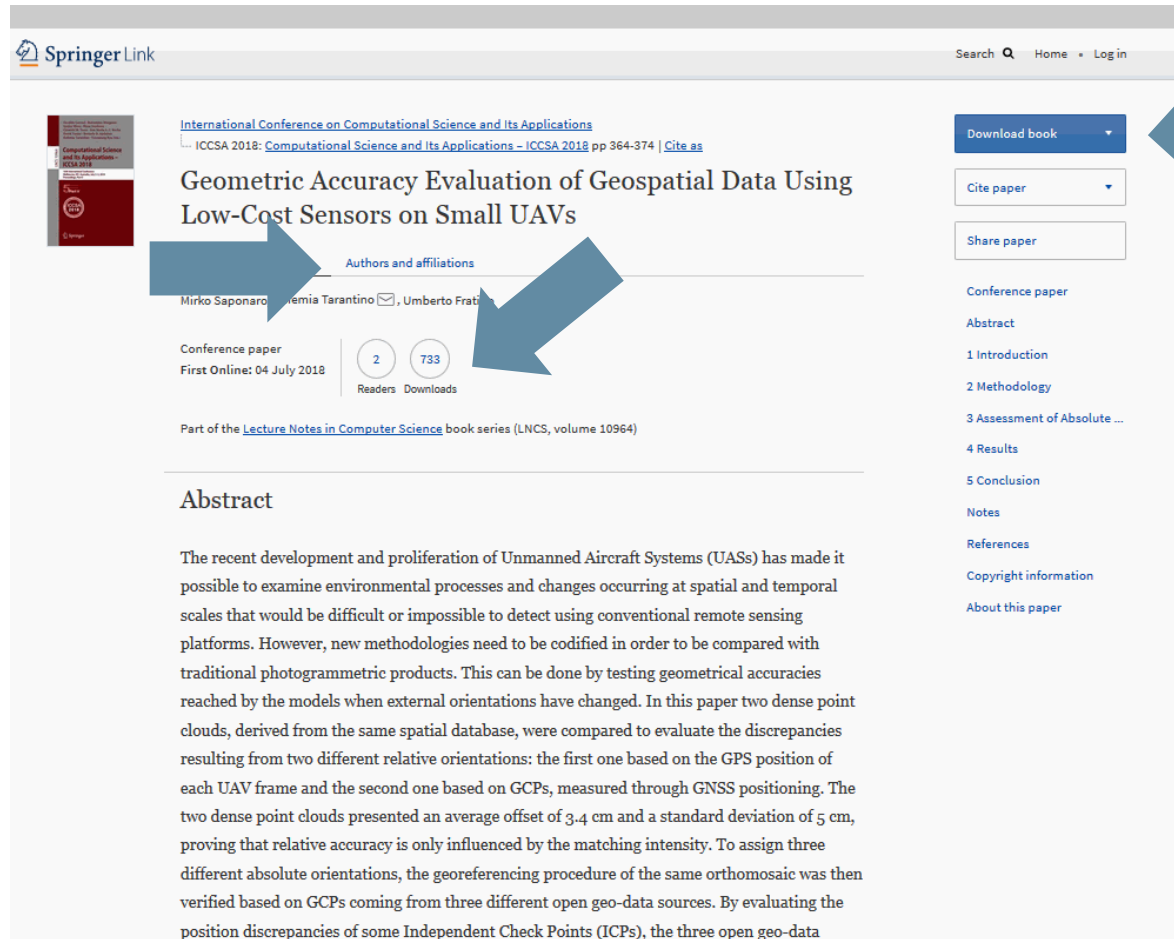
1 Citations

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Authors and affiliations

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Abstract

The recent development and proliferation of Unmanned Aircraft Systems (UAS) has made it possible to examine environmental processes and changes occurring at spatial and temporal scales that would be difficult or impossible to detect using conventional remote sensing platforms. However, new methodologies need to be codified in order to be compared with traditional photogrammetric products. This can be done by testing geometrical accuracies reached by the models when external orientations have changed. In this paper two dense point clouds, derived from the same spatial database, were compared to evaluate the discrepancies resulting from two different relative orientations: the first one based on the GPS position of each UAV frame and the second one based on GCPs, measured through GNSS positioning. The two dense point clouds presented an average offset of 3.4 cm and a standard deviation of 5 cm, proving that relative accuracy is only influenced by the matching intensity. To assign three different absolute orientations, the georeferencing procedure of the same orthomosaic was then verified based on GCPs coming from three different open geo-data sources. By evaluating the position discrepancies of some Independent Check Points (ICPs), the three open geo-data

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