

A photo taken with a mobile phone to detect frauds in rice labelling

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A simple photograph taken with a mobile phone is able to detect irregularities in the labelling of rice, according to an investigation conducted by the Complutense University of Madrid (UCM) and the Scintillon Institute of San Diego (USA).

This has led scientists to develop an algorithm based on [deep learning](#)—a field of artificial intelligence—that is able to determine whether that [rice](#) is really the one described with the images taken with the smartphone.

"What we contribute compared to other [detection methods](#) is simplicity and we show the consumer that you do not need large sums of money to verify whether a certain type of rice is the one mentioned on the label," states José Santiago Torrecilla, Professor and researcher from the Department of Chemical Engineering and Materials of the UCM.

Although in Europe the most common fraud is selling low-quality rice as if it were high quality, in other places plastic has been added to grains in quantities undetectable by the consumer until it is cooked.

To carry out the study, the researchers used five types of rice that were ground "in order to distinguish the type of rice not only when it is in grain form but also when it is ground into flour," says Torrecilla.

With all this information, algorithms based on [convolutional neural networks](#) were designed and optimized to process the information contained in the images for classification based on the type of rice, obtaining final precision models between 93% and 99%.

"It should be noted that rice is just one example of cereal and, therefore, this technology could be extrapolated to other types of cereals or food," concludes the UCM chemist, leaving the door open for future applications in the food industry.

More information: Manuel Izquierdo et al, Visible imaging to convolutionally discern and authenticate varieties of rice and their derived flours, *Food Control* (2019). [DOI: 10.1016/j.foodcont.2019.106971](#)

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