O27 - *In vitro* digestions to predict the glycemic index of rice

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*In vitro* digestion systems (both static and dynamic) are very useful models to predict the digestion of food, and its constituents. These systems are inexpensive, practical and do not bring any ethical issues, when compared with *in vivo* assays [1]. Therefore, *in vitro* digestion systems can be used to predict the glycemic index of food (e.g., rice). This parameter can be used to predict the blood glucose response after the ingestion of food and can therefore be used to select the appropriate diet for people that suffer from some kind of glucose intolerance. In this work, the *in vitro* digestion of rice samples (e.g. brown rice with quinoa) was studied to predict their glycemic index. The glycemic index of rice was determined based on the protocol developed by Goñi I et al [2] with some modifications based on the work of other authors [3]. Briefly, five grams of rice were digested using a standardized *in vitro* digestion protocol [4] and samples were taken every 30 minutes. The samples were analyzed using the glucose oxidase-peroxidase method to determine the hydrolyzed starch. The digestion curve was then fitted to a non-linear model \((C = C_\infty * (1 - e^{-kt}))\). Furthermore, a standard food (e.g., starch) was used and the area under the curve of both rice and starch was determined to calculate the glycemic index of rice [2]. Total starch was also determined using the amyloligosidase/α-amylase procedure and the amylose content was determined based on the protocol developed by other authors [5]. It was found that brown rice with quinoa, with 38.88 ± 1.19 % of total starch and 1.49 ± 0.17 % of amylose, has a glycemic index of 89.12 and therefore this rice, contrary to what would be expected, can be classified as a high glycemic index food (i.e., glycemic index above 70) [6]. This high glycemic index value can be explained by the low percentage of amylose content [3].

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