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Arabinoxylan content and grain tissue distribution in wheat products are good predictors for the amount and quality of dietary fiber.

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Epidemiological studies have shown that high dietary fibre (DF) diets and whole grain consumption are associated with diminished risk of coronary heart disease, colon cancers, inflammatory bowel disease, and metabolic syndrome (Anderson *et al*., 2009). Cereals foods, with wheat as the main source in Europe, could be one of the pillars of a healthy diet and might help to increase the DF intake. In that context having reliable method to quantify the DF amount is crucial to characterize food product but also monitor the development of enriched cereal based products. DF measurements are based on sequential and gravimetric analyses mimicking human digestion. Such methods made of several steps are time-consuming and results obtained are still under debate (Hell *et al.,* 2014). Wheat grain contains about 12-14% of fibres mainly located in the outer layers (from the aleurone layer to the pericarp). Considering this specific location, the tissue composition of different mill streams has been measured (as done by Hemery *et al.,* 2009) and compared to their total DF amount measured with the AOAC 2009-01 method. Assuming that the most peripheral tissues are mainly constituted of DF, the tissue composition could be used to estimate the total DF content in mill streams. However such approach could not be extended to food products. Therefore, knowing that arabinoxylans (AX) are the main components of cell walls in the different tissue of the wheat grain, biochemical determination of AX content has been investigated as a possible predictor of DF content. A set of different wheat products, either mill streams and food products (bread, biscuits, pasta) more or less enriched in DF fractions extracted from wheat grains, have been characterized either for DF amount (by the AOAC 2009-01 method) and the AX content by gas chromatography of alditols acetates after sulfuric acid hydrolysis. A strong correlation (r^2=0.99) has been observed between the AX and TDF contents, indicating that AX could be used as a good predictor of TDF as soon as wheat is the main source of cereal in the food product. Moreover, by adding a previous step including enzymatic hydrolysis with a xylanase (Saulnier & Quemener, 2009), a functional evaluation of DF is proposed based on the amount of AX released by the enzyme. Xylanase hydrolysable AX are supposed to be also released by microbiota's enzymes in the gut and therefore an indicator for the proportion of fermentable DF in a tissue or a wheat based food. This assay opens the door for simple characterization of qualitative attribute of cereal DF.

Keywords. wheat;arabinoxylans; histology; enzymatic hydrolysis

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