



International Conference

# FROM SEED TO PASTA III

**A SUSTAINABLE DURUM WHEAT CHAIN  
FOR FOOD SECURITY AND HEALTHY LIVES**

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## BIOACTIVE COMPOUNDS IN DURUM WHEAT

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The interest of consumers and industry in wholegrain products is strictly connected to the presence in cereal grains of the so called bioactive substances. Their presence is interesting for the production of high value food products with enhanced health benefits. Bioactive compounds can be described as non-nutritional elements that typically occur in small quantities: they are beneficial for human health but not essential for the human body. In durum wheat as in all the other cereals they are prevalently located in the bran/germ fraction hence the interest in whole grains. They belong to different chemical groups and they can be grouped under the broad categories of dietary fibre, phytochemicals (phenolic acids, alkylresorcinols, lignans, carotenoids, phytosterols, etc.), vitamins and minerals. Health benefits are achieved through complex physiological mechanisms that include antioxidant activity, mediation of hormones, enhancement of the immune system, facilitation of substance transit and absorption through the digestive tract, butyric acid production in the colon. Their content in grains depends on genotype (cultivar) and growing conditions i.e. environment and crop husbandry. Processing is of paramount importance for the keeping of bioactive compounds in food products. Key events affecting the nutritive value of products produced from durum wheat are milling, dough mixing and extrusion in pasta and leavening method in bread baking. Pasta drying is reported to have little effect. However, for products such as pasta which necessitate of a further thermal treatment such as home cooking before consumption, this step also has to be taken into account when evaluating the contribution of bioactive compounds coming from durum wheat in the human diet.