

# APPLES, MORE THAN A TASTY FRUIT? TRADITIONAL USE, ACTUAL APPLICATIONS AND POTENTIAL OF NEW TARGETS IN PHARMACY AND MEDICINE

Stefan Martens

Food Quality and Nutrition Department, IASMA Research and Innovation Centre, Fondazione, Edmund Mach, Via E. Mach 1, I-38010 San Michele all'Adige, (TN), Italy;

“An apple a day keeps the doctor away” is the modern day slogan for the old English saying “Ate an apfel avore gwain to bed Makes the doctor beg his bread”. The health benefits of apples were first recorded as early as medieval times. The tree itself (*Malus* sp.) is an agriculturally and economically very important crop and the source of several foods and beverages but also of some nutritional or pharmaceutical products. Fruits but also leaves are known to accumulate polyphenolic compounds, e.g. flavonoids, anthocyanins and proanthocyanidins, with dihydrochalcones as characteristic bioactive metabolite of the genus, with otherwise only limited distribution in higher plants. Research over the last decades has verified the above statement and more recent studies have linked apples to health promoting activities ranking from weight loss to different types of cancer, heart disease, obesity, type 2 diabetes and asthma. Some other recent studies suggest that its consumption reduce the risk of developing Alzheimer’s disease and improve immunity and gut health due to natural compounds found mainly in the apples peel. These strong evidence led to the hypothesis that apple polyphenols but also other metabolites such as carotenoids might have significant potential for yet not identified applications in nutrition, cosmetics and pharmacy. Therefore, the diversity of various secondary metabolites in different varieties and wild species available in the collection of FEM provide an unique opportunity for development for products with high nutritional and healthy properties but also for identification of novel application in pharmacy and medicine.