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Nutritional and chemical composition of *Moringa oleifera* flowers and its potential to alleviate malnutrition and covid-19 symptoms

A balanced diet may play an essential role in maintaining general well-being by controlling chronic infectious diseases. Balanced diets including vitamins and micronutrients may also be beneficial in preventing or managing various infectious diseases. This study evaluated the nutritional composition, vitamins, minerals, and anti-nutrients content of *Moringa oleifera* flowers using ALASA methods and ICP-OES technique. Proximate analysis revealed that total ash was 8.82%, fat 3.48%, protein 23.52%, moisture 8.915%, dry matter 91.09%, crude fibre 12.828% and carbohydrates 42.44%. High acid detergent fibre (ADF), vitamins (A, C, and E), neutral detergent fibre (NDF), and minerals were also observed the in *Moringa oleifera* flowers. Saponin was the highest anti-nutrient ($20.66 \pm 11.54\%$), followed by oxalate ($18.53 \pm 1.944\%$) and alkaloids ($10.85 \pm 3.77\%$) with phytic acid ($2.89 \pm 0.67\%$) the least. High contents of potassium (2975 ± 63.09), manganese (3.5 ± 0), copper (0.9 ± 0), and zinc (4.8 ± 0) necessary for fighting infections were present. This study shows that *Moringa oleifera* flowers are immensely rich in vital nutrients that are of great importance to health and metabolism and have the potential to prevent malnutrition and boost immunity to prevent infectious diseases like COVID-19.

Keywords

vitamins, nutrients, proximate, *Moringa oleifera* flowers, malnutrition

Biography

Dr. Sandisiwe Maposa is a dynamic young scientist and entrepreneur hailing from Ngqamakwe in the Eastern Cape, South Africa. A proud alumna of the University of Fort Hare, she holds a Doctor of Philosophy (PhD) in Botany, with a research focus on plant biochemistry, particularly the medicinal properties of plants and their role in economic development.

Her academic journey began at Executive Primary School and later Mida Christian School in iDutywa, where her passion for science was nurtured. She matriculated in 2013 with a Bachelor's degree admission and soon after joined the University of Fort Hare, renowned as the cradle of black intellectual leadership in South Africa. She majored in Microbiology and Botany, completing her undergraduate degree in record time, followed by Honours, Master's, and PhD degrees.

Driven by a vision to bridge scientific knowledge and practical application, Dr. Maposa launched SandyMaps Personal Care, a brand inspired by her research. The brand offers eco-friendly hair and body care products made with essential oils and plant extracts, many derived from indigenous medicinal plants. Through her business, she champions the value of traditional knowledge, biodiversity, and natural beauty solutions while contributing to local economic development.

Her work has earned her invitations to present her findings across several African countries, positioning her as a rising voice in the fields of plant science, sustainable entrepreneurship, and indigenous innovation