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DSM extends its fight against 'hidden hunger' with scientific breakthrough

Royal DSM NV, the world's leading Life and Materials Sciences company, announced today a scientific breakthrough in tackling iron deficiency and malaria in partnership with the World Food Programme. It has found a new way to resolve a longstanding nutrition problem - using its enzyme expertise to provide iron to those suffering from iron deficiency, without increasing the risk of malaria.

DSM has been working with its partner the World Food Programme (WFP), and the Swiss Federal Research Institute's Laboratory for Human Nutrition, to find new solutions to problems of poor quality nutrition - or so-called 'hidden hunger'. This describes a situation affecting around 2 billion of the world's population, where people eat enough calories to live, but whose diets fail to provide the crucial vitamins or vital minerals that allow them to be mentally and physically healthy. Hidden hunger is a global issue of critical, and growing, importance that is widely ignored despite its devastating consequences.

Iron deficiency is a typical form of hidden hunger. Lack of this key mineral causes anaemia, which badly affects children and pregnant women. Globally, some 19 million children a year are born with impaired mental capacity and 40% of women of child-bearing age suffer iron deficiency, causing at least 60,000 childbirth deaths a year. Nutritionists and physicians have been providing iron supplements to women and young children for many years, with varying degrees of success. Societies with primarily grain-based diets, like Sub-Saharan Africa, have posed particular difficulties. Iron is a friend and a foe to the body. Essential for healthy growth, it is a key element of all human diets. However, traditional high-dose iron supplements have had the unwelcome side-effect of providing too sudden a boost of iron which overwhelms the body's ability to manage the mineral and assists the parasite which causes malaria to flourish in the body.

The African problem is that the local diet, based on maize, sorghum and other cereal crops, is high in phytic acid. This natural ingredient slows the absorption of minerals like iron, zinc and calcium into the body, making low-dose iron supplements virtually ineffective. Hence the use of high-dose supplements, and the resulting malaria problem.

The research programme that DSM undertook was designed to find a solution to this problem - and it comes from DSM's enzyme knowledge. DSM discovered that the enzyme phytase could be used to break down the phytic acid, which would therefore enable a low-dose iron supplement to be effective. Phytase was added to DSM's food supplement MixMe®, which is added as a single-serving supplement to regular meals. The results were a fivefold increase in iron absorption, even from meals like maize porridge that are high in phytic acid.

[Stephan Tanda](#), Member of the Managing Board of DSM said, *"We are delighted by the outcome of the research project, which demonstrates both the value of working in partnership and the huge potential of enzyme technology. We are proud to be making a real difference, and to demonstrate our commitment to tackle hidden hunger, challenge by challenge, tailoring solutions to particular needs."*

According to Martin Bloem of WFP, *"The current study results are excellent news for so-called home fortification of foods in areas where malaria is endemic. The study results are also very encouraging for the global fight against nutritional anemia and other consequences of consumption of diets with limited nutritional quality, which is a widespread consequence of the current economic crisis."*

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DSM - the Life Sciences and Materials Sciences Company

Royal DSM N.V. creates innovative products and services in Life Sciences and Materials Sciences that contribute to the quality of life. DSM's products and services are used globally in a wide range of markets and applications, supporting a healthier, more sustainable and more enjoyable way of life. End markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electrical and electronics, life protection and housing. DSM has annual net sales of EUR 9.3 billion and employs some 23,500 people worldwide. The company is headquartered in the Netherlands, with locations on five continents. DSM is listed on Euronext Amsterdam. More information: www.dsm.com

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Forward-looking statements

This press release contains forward-looking statements. These statements are based on current expectations, estimates and projections of DSM and information currently available to the company. The statements involve certain risks and uncertainties that are difficult to predict and therefore DSM does not guarantee that its expectations will be realized. Furthermore, DSM has no obligation to update the statements contained in this press release.

The English language version of the press release is leading.

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