New research has revealed that the plant compound resveratrol, which is found in the skin and seeds of grapes and berries, blocked an enzyme that causes depression and anxiety in trials on mice.

This compound, commonly found in red wine, "has numerous pharmacological properties including anti-stress and antidepressant-like abilities", reports the study.

In particular, its newly discovered properties have to do with how it inhibits an enzyme called phosphodiesterase 4 (PDE4).

This specific enzyme is influenced by the stress hormone corticosterone, so affecting the enzyme could affect someone's mood.

Ying Xu, MD, PhD, and co-lead author of the study believes this finding could be especially valuable for the medical community. She notes: “Resveratrol may be an effective alternative to drugs for treating patients suffering from depression and anxiety disorders.”

These patients make up a large group. According to the Anxiety and Depression Association of America, depression and anxiety disorders affect 16 and 40 million people respectively in the U.S.

Findings could open doors to new treatment against depression

Corticosterone regulates the body’s response to stress. Yet too much stress can lead to excessive amounts of the hormone circulating in the brain; this in turn can ultimately lead to the development of depression or other mental disorders.

In the study on mice, researchers used corticosterone to induce PDE4. They then showed how this enzyme causes depression and anxiety-like behavior.

Yet resveratrol guarded against this behavior by inhibiting the expression of PDE4. The research lays the groundwork for the use of the compound in novel antidepressants.

Typically, antidepressants typically focus on serotonin or noradrenaline function in the brain. But only one-third of patients with depression enter full remission in response to these medications, says Xu.

Thus the finding paves the way for new and potentially more effective treatment options.

The study, published in the journal Neuropharmacology, was also led by Xiaoxing Yin, Xia

Zhu, Wenhua Li, Yongkun Li, Wenhua Xu, Yirong Yuan, Victor Zheng, Hanting Zhang, and James M.O'Donnell.