CLAIMS

1. Use of a composition comprising from about 2 mg to about 800 mg of paraxanthine, in the manufacture of a medicament for attenuating stress-induced mental fatigue in subject in need thereof.
2. The use of claim 1, wherein paraxanthine is present in the composition in amount from about 50 mg to about 400 mg.
3. The use of claim 1, wherein the stress is physical stress.
4. The use of claim 1, wherein the stress is psychological stress.
5. The use of claim 4, wherein the stress is an acute stress.
6. The use of claim 4, wherein the stress is a chronic stress.
7. The use of claim 1, wherein the composition further comprises one or more additional active agents and wherein in the one or more active agents are selected from: L-Theanine, a blood flow enhancing agent, a nitric oxide stimulating agent, L-Arginine, L-Citrulline, Ginkgo Biloba, choline, phosphatidylserine, creatine, omega-3 fatty acids, beta-alanine; L-tyrosine; N-Acetyl-L-tyrosine; L-Ornithine; L-ornithine-L-aspartate; Melissa officinalis (Lemon Balm); pyrroloquinoline quinone; L-taurine; arginine alpha-ketoglutarate, and blueberries.
8. The use of claim 1, wherein the composition further comprises an anti-cortisol agent and one or more anti-cortisol agent is selected from: phosphatidylserine, rhodiola, ashwagandha, magnolia, holy basil, omega 3s, and/or l- theanine.
9. The use of claim 1, wherein the composition is to be administered prior to the onset of stress in the subject.
10. The use of claim 1, wherein the composition does not include caffeine and wherein the subject abstains from consuming caffeine during the steps of the method.
11. A nutritional supplement to prevent mental fatigue induced by a stressor comprising from about 2 mg to about 800 mg paraxanthine and a nutraceutically acceptable carrier thereof.
12. The nutritional supplement of claim 11, wherein the paraxanthine is present in amount from about 50 mg to about 400 mg.
13. The nutritional supplement of claim 12, further comprising one or more additional active agents and wherein in the one or more active agents are selected from: L-Theanine, a blood flow enhancing agent, a nitric oxide stimulating agent, L-Arginine, L-Citrulline,

Ginkgo Biloba, choline, phosphatidylserine, creatine, omega-3 fatty acids, beta-alanine; L-tyrosine; N-Acetyl-L-tyrosine; L-Ornithine; L-ornithine-L-aspartate; Melissa officinalis (Lemon Balm); pyrroloquinoline quinone; L-taurine; arginine alpha-ketoglutarate, and blueberries.

14. The nutritional supplement of claim 11, further comprising an anti-cortisol agent and wherein the anti-cortisol agent is one or more of : phosphatidylserine, rhodiola, ashwagandha, magnolia, holy basil, omega 3s, and/or l- theanine.
15. Use of a composition comprising from about 2 mg to about 800 mg of paraxanthine, in the manufacture of a medicament for enhancing the stress resiliency in a subject in need thereof.
16. The use of claim 15, wherein administration of the composition to the subject increases resiliency exercise-induced stress.
17. The use of claim 16, wherein administration of the composition to the subject increases resiliency psychologically-induced stress.
18. The use of claim 15, wherein administration of the composition to the subject increases BDNF level in the subject and wherein BDNF levels are increased by from about 5% to about 40%.
19. The use of claim 15, wherein administration of the composition to the subject increases levels of catalase and/or glutathione in the subject.
20. The use of a claim 15, wherein increasing resiliency to stress decreases susceptibility of the subject to a stress related disorder selected from: depression, major depressive disorder (MDD), anxiety disorder, panic disorder (episodic paroxysmal anxiety), panic attack, obsessive compulsive disorder, social anxiety disorder, phobic anxiety disorders, posttraumatic stress disorder (PTSD), acute stress disorder, obsessive compulsive disorder, hypertension, and inflammatory bowel syndrome.