Green Tea and Nigella Sativa- Herbs in Non-Alcoholic Fatty Liver Disease

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Non-alcoholic fatty liver disease (NAFLD) is the foremost cause of progressive liver disorder worldwide. It has strong association with obesity 41-61%, metabolic syndrome 30-56%, Type-2 diabetes 18- 28%, dyslipidemia 52-83% and hypertension 15- 46%. These risk factors promote NAFLD as a global health issue especially in western countries with a prevalence rate of about 20-30%. In recent years, the prevalence rate of 15-30% has been found in Asian countries in the general population due to the strong influence of lifestyle modification and urbanization patterns on the associated risk factors. There is an urgent need to reduce the enormous clinical and economic burden of NAFLD globally.[1] Lifestyle modification in the form of the diet, weight loss, and physical exercises is advocated as the first line of intervention in NAFLD patients.[2] However, there is no effective FDA drug treatment for NAFLD patients so far. Due to the presence of associated comorbidities in NAFLD patients various drugs such as insulin sensitizers, antioxidants, antidyslipidemic, hepatoprotective (silymarin), and miscellaneous agents like pentoxifylline, orlistat, and incretin-based therapies with varying results have been tried up till now.[3]

Green Tea is an unfermented product of the leaves and bark of the plant (Camellia sinensis) and is one of the famous drinks all over the world especially in the region of southeast Asia. Green Tea contains thousands of bioactive compounds out of which one-third is contributed by polyphenols which are mostly flavonoids.[4] Catechins are one of the main flavonoids in green tea has recently attracted attention for their use in various diseases due to their antiaging, anti-cancer, anti-parkinsonism, anti-stroke, anti-diabetic, anti-caries and anti-bacterial, anti-diarrheal, anti-fibrotic, anti-inflammatory, anti-oxidative, and anti-atherosclerotic properties. Green tea has a strong potential to reverse all those suspected mechanisms that have been suspected in the pathogenesis of NAFLD in various clinical and experimental studies. Green tea decrease hepatic steatosis by reducing hepatic insulin resistance, which is a key mechanism in its pathogenesis.[5] Green tea has a strong potential to boost the immune system, reduces the formation of reactive oxygen species (ROS), increases the activity of pro-oxidant enzymes such as glutathione peroxidase and superoxide dismutase through its antioxidant properties and finally, green tea reduces various inflammatory chemokines and cytokines as inflammation and oxidative stress is the pathognomonic features in NAFLD related complication. In addition green tea has a beneficial effect on all NAFLD-associated medical conditions such as obesity, metabolic syndrome, hypertension, and dyslipidemia in various clinical studies.[6]

Nigella sativa a natural remedy for a variety of medical ailments has been used for centuries due to its historical and religious background. Although it exists in several forms but according to our Prophet (PBUH) saying its seeds are the remedy for all the diseases except death. It is also called black seeds, black cumin, black caraway, fennel flower, nutmeg flower, kalonji and used for centuries as home remedies and culinary proposes in South Asia.[5] It is a miracle herb and has a potential for use in a variety of medical clinical condition such as diabetic mellitus, dyslipidemia, asthma, hypertension, diarrhea, peptic ulcer, rheumatoid arthritis, osteoporosis. In addition, it has anti-inflammatory, anti-oxidant, anti-fibrotic, antipyretic, analgesic, antibacterial, anti-fungal, anti-parasitic, anti-viral, anti-tumor, and immunomodulatory properties. Nigella sativa has beneficial effects on all those risk factors which are associated with NAFLD in various clinical studies such as improvement in metabolic syndrome, blood pressure, and weight gain, and lipid profiles.6 Moreover, it has also having anti-inflammatory and anti-oxidant properties, because inflammation and oxidative stress plays an important role in the progression as well as complication of NAFLD.[7]

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