

## USE OF EM-PRODUCTS IN HEALTH SECTOR

Use of beneficial microorganisms has existed since the early beginning of human history. Yogurt, cheese and alcoholic beverages are made with the help of microorganisms. Lactic acid bacteria and yeast are well known to produce various kinds of vitamins and lactic acids. Professor Dr. Teruo Higa, University of Ryukyus, Okinawa, Japan developed effective microorganisms (EM) over many years in liquid form and completed his findings in 1982. At first EM was considered an alternative for agriculture chemicals, but its use has now spread to applications in the fields of environments, industries and health. Thereafter, it leads to the establishment of EM Research Organization in 1994 in Okinawa, Japan. EM Research Organization promotes and disseminates EM Technology all over the world. EM Research Organization has a team of more than 100 researchers around the globe conducting research on EM in different fields to uncover viable solutions for existing problems relating to environments, industrial pollution and health. EM Technology has been widely adopted at Government/Semi Government levels in different countries like New Zealand, Egypt, North Korea, Thailand, Myanmar and Pakistan. Besides this, the use of EM Technology is getting much popularity and importance in different sectors (agriculture, environments and treatment of effluents and wastes of industries) in 23 countries like America, China, Vietnam, Switzerland, Guatemala, Thailand, Sri Lanka, Nepal, Netherlands, India, Australia, Austria, Indonesia, Bhutan, Philippines, Costa Rica and Myanmar.

Through diligent research EM-X and EM-Salt have been introduced for use in health sector. EM-X is made from only those substances found in the natural fermentation media. EM-X is extracted from rice bran and seaweeds previously fermented with effective microorganisms. Thus, EM-X contains naturally occurring 40 kinds of minerals, potent antioxidants (o-tocopherol, flavonoid,  $\gamma$ -oryzanol, ubiquinone, and lycopene) and bioactive substances (NAD, NMN, peptide, and such amino-acids as L-alanine and L-glutamine). EM-X does not include in any artificial vitamins, Chinese medicines and chemical additives, which are often added in other health drinks.

Antioxidants are substances, which prevent oxidation or slow down the oxidation process reasonably. Oxidation is a vital process to sustain human life. Breathing is a type of oxidation process. Oxygen is taken into the lungs and is sent to all the cells in a body. The oxygen dissolves nutrients to obtain energy. However, the oxidation process may bring harmful effects when it becomes overactive in the human body. Activated oxygen is the cause of harmful effects. Oxygen is generally stable but loses its stability in the human body and becomes highly active. When such highly activated oxygen becomes over abundant, it oxidizes and destroys every thing that comes into its way.

The smallest unit of the human body is a cell. It is covered with a membrane that contains unsaturated fatty acids, which is similar to the major component of salad oil. Activated oxygen oxidizes unsaturated fatty acids to lipid

peroxide, which causes mal functioning of the cell membrane and in turn brings harmful effects to human body.

Oxidation is a process in which a molecule gives up electrons and becomes unstable. When activated oxygen becomes excessive, unsaturated fatty acids in cell membrane give up its electrons. Antioxidants, if available, will provide electrons to the activated oxygen or to one unsaturated fatty acids under oxidation and will restore them to stable condition. Therefore oxidation will not proceed if abundant antioxidants exist. Antioxidants provide electrons to activated oxygen and other molecules, which have lost electrons and been unstable. Thus, antioxidants restore them to a stable condition. This is how antioxidants work to maintain a healthy body.

### **Unique Characters of EM-X**

EM-X is a tasteless, odorless, transparent liquid with a golden tinge and has some unique physio chemical characteristics. The water cluster of EM-X showed half the values of nuclear magnetic resonance (NMR) when compared with the NMR values of tap water and the values of NMR of EM-X water were as small as of the cluster of super pure water. Therefore the cluster of water in EM-X is very, flexible and mobile, thus, the human body can easily absorb EM-X with all its ingredients. Chemically the water  $(H_2O)_n$  is a cluster of many water molecules. The water present in a human body (about 70%) is also in the form of clusters linked with different substances. The size of a cluster represents the activation degree of water. The type of a cluster in various waters can be measured with nuclear magnetic resonance (NMR) tester. Further water characteristics can be measured with a molecular vibration tester (Raman spectroscopy). The measurements made on EM-X water confirmed strong luminescence indicating the presence of other substances in EM-X.

The founder of EM Technology Prof. Dr. Teruo Higa, Okinawa, Japan was kind enough to provide EM-X bottles free of cost to Dr. Khalida Usmani, ex-Principal and Professor of Surgery at Fatima Jinnah Medical College Lahore to test the effectiveness of EM-X on cancer patients. The interview held on 16<sup>th</sup> December 2002 with more than thirty cancer patients and Dr. Khalida Usmani by the Principal Officer, EMRO Lahore, in the presence of honorable of Prof. Dr. Teruo Higa reveals that EM-X helps to increase the vigor; hence the work status of the patients was increased.

Prof. Dr. Teruo Higa during his interview on 16<sup>th</sup> December 2002 gave 30 EM-salt bottles free of cost as a gift to Dr. Khalida Usmani for test purposes on cancer patients.



2 Days ago breast cancer operated patient, taking EM-X



Dr. Higa with cancer patients