A) The kind of solute employed to reduce the $a_w$ for many organisms, especially molds, the lowest $a_w$ for growth is independent of the kind of solute used.

2) The nutritive value of the culture medium. In general, the better the medium for growth, the lower the limiting $a_w$.

3) Temperature. Most organisms have the greatest tolerance to low $a_w$ at about optimal temperature.

4) Oxygen supply. Growth of aerobes takes place at a lower $a_w$ in the presence of air than in its absence.
5) PH. most organisms are more tolerant of low $a_w$ at pH values near neutrality than in acid or alkaline media.

6) Inhibitors. the presence of inhibitors narrows the range of $a_w$ for growth of microorganisms.

B) 1- Growth and activity of microorganisms. often a succession of organisms is involved.

2) Insects.

3) Action of the enzymes of the plant or animal food.

4) purely chemical reactions i.e. those not catalyzed by enzymes of the tissues or of microorganisms.

5) physical changes, such as those caused by freezing, burning, drying, pressure.

C) 1- The temperature employed. this varies with the food and method of drying.
2) The relative humidity of the air. This is varied with the food and the method of drying and also with the stage of drying. It usually higher at the start of drying than later.

3) The velocity of the air.

4) The time of drying

D) 1- Sweating: is storage in bins or boxes. For equalization of moisture or readdition of moisture to a desired level.

2) Packing: most foods are packaged soon after drying for protection against moisture, contamination with microorganisms and infestation with insects.

3) Pasteurization: is limited to dried fruits and kill any pathogens that might be present, as well as destroying spoilage organisms. The treatment varying with fruit, is from 30 to 70 min. at 70 to 100 percent relative humidity at 65 to 85°C

E) Acid rain: sulfur oxides interact and nitrogen oxides existing factory fumes with water vapor atmosphere consists sulfuric and nitric and rain
becomes acidic.

2 - Sewage: the main source of microbial contamination of drinking water

3- Remnants of industrial activity for humans: this waste carry a lot of heavy metals such as copper, zinc, mercury and others.

4- Agricultural waste: carry agricultural fertilizers and pesticides which may reach with drainage water to fresh water resources.

F) 1- Stable, include sugar, flour and dry beans.

2- Semiperishable foods. If these foods are properly handled and stored e.g. potatoes, some varieties of apples.

3- Perishable foods: this group includes foods that spoil unless special preservation methods are used. e.g. meats, fruits, vegetables, eggs, and milk.

2) A- Metabiotic, when one organism makes condition favourable for growth of the second. Both organisms may be growing at the same time but more commonly one succeeds the others. Most natural fermentations or decompositions of raw
foods illustrate metabiosis.

B) Anaerobic decomposition of proteins, peptides, or amino acids, may result in the production of obnoxious odors and is then called putrefaction.

C) Lacking any of the conditions for safe drinking water, the suspensions may contain or chemicals or radioactive materials or microbes are harmful to health.