Claims

1. A method for inhibiting both glycolysis and glutamine metabolism in cells, comprising using formic acid and/or formate to inhibit the NAD/NADH redox conversion in glycolysis and the NADP/NADPH redox conversion in glutamine metabolism in cells.

2. The method according to claim 1, wherein the formic acid and/or formate is used to inhibit both the NAD/NADH cycle in glycolysis and the NADP/NADPH cycle in glutamine metabolism in tumor cells, so as to treat tumor diseases;–

wherein the formate include but are not limited to salts of sodium, potassium, calcium, magnesium or ammonium.

3. The method according to claim 1 or 2, wherein formic acid and/or formate is used in forms of injection for transfusion, paste for external application, spray, stifling agents, bath salt or mouthwash, for prevention or treatment of tumors.

4. The method according to claim 1 or 2, wherein formic acid and/or formate is used in combination with traditional therapies such as surgery, radiotherapy, chemotherapy and targeted therapy, to help avoid tumor metastasis and recurrence.

5. The method according to claim 1 or 2, wherein

formic acid and/or formate is used in combination with a traditional invasive inspection process such as centesis and microtomy, and is administered before the inspection, to help avoid tumor metastasis and spreading.

6. The method according to claim 1, wherein formic acid and/or formate is used to block the hydrogen cycling process required for the redox reactions in both glycolysis and glutamine metabolism in anaerobia and facultative anaerobia, to achieve the effects and purposes of prevention and treatment of bacterial infection, preservation of food and cosmetics of a natural origin, sterilization protection for seeds and plants, and prevention of diseases and infections in poultry farms.

7. The method according to claim 6, wherein the bacterial infection includes, but is not limited to, inflammations caused by anaerobia or facultative anaerobia in the digestive tract, periodontitis, pharyngitis, oral inflammation, nasal inflammation, hircismus, human skin diseases such as onychomycosis, dermatophytosis, psoriasis, scalp mould, mycotic venereal diseases and bromhidrosis, and microbial infections in the respiratory tract, digestive tract, urethra or lung; most preferably, formic acid and/or formate is used in the form of an oral agent, a spray, a fumigant, a lotion or mouthwash having water, an ethanol solution or an acetic acid solution as a carrier, or in the form of a paste or bath salt.

8. Use of formic acid and/or formate in the preparation of a medicament for preventing and/or treating tumors by inhibiting both glycolysis and glutamine metabolism in cells.

9. Use of formic acid and/or formate in the preparation of a medicament for preventing and/or treating anaerobia infections by inhibiting both glycolysis and glutamine metabolism in cells.

10. Use of formic acid and/or formate in the preparation of a medicament for treating gout and/or reducing the onset of gout, or reducing diseases caused by acidic body fluids, wherein the medicament produces, via redox metabolism in cells or microorganisms in the intestinal tract in a human body or via free radical oxidation in a human body including blood, alkaline sodium carbonate or potassium carbonate, which neutralizes acidic substances *in vivo*, and promotes excretion of blood uric acid in the form of water-soluble urate, so as to treat gout and/or reduce the onset of gout, or reduce diseases caused by acidic body fluids, wherein the formate includes but is not limited to sodium formate, or potassium formate .

11. Use of formic acid and/or formate in the preparation of a food product that prevents tumors by inhibiting both glycolysis and glutamine metabolism in cells, wherein formic acid and/or formate are used as one of the ingredients in trace amount to moderate amount in pickles, pickles in soy sauce, dry goods, rice flour, rice flour products, flour, flour products, daily drinks, mouthwash, mineral water, bottled water or drinking water.

12. Use of formic acid and/or formate in the preparation of a food product which avoids or delays the acidification of water caused by fermentation by inhibiting both glycolysis and glutamine metabolism in cells, wherein reductive formic acid or formate, is used in the pre-immersion or washing process with water in food processing, to inhibit the metabolic process in anaerobia or facultative anaerobia, so as to avoid or delay the acidification of water caused by fermentation.