

Folklore or Facts: Investigating the Nutritional and Ethnopharmacological Roles of Animal Parts

Maryam Faiz^{1*}

1. Department of Zoology, Women University of Azad Jammu and Kashmir, Bagh, Pakistan

*Corresponding author e-mail: maryamfaiz1996@gmail.com

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SUMMARY

Meats of animals consist of mainly nitrogenous compounds, lipids and minerals. Animal fats and oils are mainly composed of lipids. At room temperature, fats and oils are solid and liquid, respectively. Triglycerides are found in fats and oils. Bile is made up of salts, water, bilirubin, biliverdin, lipids (cholesterol, lecithin, and fatty acids), and inorganic salts. Turtle carapaces are mostly made up of -pleated sheet keratin, keratinocytes, melanocytes, lipids, and mineralized collagen fibrils. Similarly, eggs are a good source of protein and vitamins. Milk is essential for humans. It is one of the oldest foods, as well as the most significant. Feathers are made up of -helix and -sheet. Sugars, water, "proteins, amino acids, vitamins, minerals, organic acids, and volatile compounds" make up honey. Animal liver has the most protein, vitamins, and lipids. These compounds are necessary for the human body.

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INTRODUCTION

Animal products are used in medicines as transporters, stabilizers, colourants and binders. Ethnomedicine may also make use of animals and animal products.

PARTS OF ANIMALS USED AS FOOD AND TRADITIONAL MEDICINE

Water, nitrogenous non-nitrogenous compounds, molecules, lipids, glycogen, minerals, etc. are all components of meat. Meat composition varies owing to the effects of several external and internal elements. Beef, poultry, lamb, fish, camel, pork and other wild animals are sources of meat globally. Meat of herptiles, mammalian and avian are utilized in different folk therapies abscesses, Acidity, allergy, anaemia, aphrodisiac, asthma, blindness, breathing trouble, bronchitis, carbuncle, CNS, cold, constipation, diabetes, diarrhea, dysentery, edema, enhance memory, epilepsy, erectile dysfunction, eruption of new teeth in children, erysipelas, eye tonic, eye-problems, fever, flu, fractures, gall bladder stone, gas trouble, hemoglobin, hepatitis B and C, immune enhancer, impotency, infertility, jaundice, joint pain, joints problem, kidney problems, lumbago, lungs infection, maturity in girls, menorrhagia, menstrual disorder, morning sickness, muscle fatigue, muscular pain, nourishing food, paralysis, pile, postpartum bleeding, puberty in young girls,

paralysis, rheumatism, scarlet fever, scorpion bite, skin burn and crack, skin diseases, snake bite, sore throats, sterility, swellings, tonsillitis, toothache, tuberculosis, urine problem, vision, weakness, wheezing trouble, whooping cough and wound healing (Haidar and Bashir, 2021).

Animal fats and oils are lipids derivative of animals (Ijaz and Faiz, 2021); fats and oils are solid and liquid at room temperature respectively. Fats and oils are consist of triglycerides (Council, 1976). Over 100 types of acids have been identified from different lipids of fauna and flora. Fatty acids are generally derived from phospholipids or triglycerides. Animal fat consists of the following fatty acids i.e. omega fatty acids and other fatty acids. Scientists noted that fats are employed to treat CNS, artery, blood, and health effects (Breteler, 2000; Haag, 2003; Muchow et al., 2009; Wilson, 2015; Sanders, 2016; Serini et al., 2019; Vieira et al., 2020; Venugopalan et al., 2021).

Bones consist of water, lipids, minerals (Robey and Boskey, 2008; Boskey and Robey, 2013) and non-collagenous proteins. Different ethnobiologists noted that bones of various taxa of fauna i.e. goat, alpine musk deer, common carp, pigs, cinereous vulture, fruit bat, deer, horse and Indian gagata employed for sicknesses like heart strength, wound, digestion, ear ache skin, eye and urine problem (Ijaz and Iftikhar, 2021).

Further, the composition of bile is bile salts, water, bilirubin, biliverdin, fats (i.e. cholesterol, lecithin and fatty acids) and inorganic salts (Farina et al., 2009; Hall and Guyton, 2011; Barrett, 2019). Published data show that bile of animal species is employed in traditional medicinal. Bear (*Ursus* sp.) is employed to treat wounds (Yeshi et al., 2017), and pulmonary problems (Haq et al., 2020). Cinereous vulture (*Aegypius monachus*) is employed to treat Goiter (Yeshi et al., 2017). Toad (*Bufo* spp.) is employed to treat swelling of the throat and tongue (Yeshi et al., 2017). Indian flap-shelled turtle (*Lissemys punctata*) is employed to treat strangulation (Altaf et al., 2018). Rohu (*Labeo rohita*) is employed to treat gastric (Borah and Prasad, 2017a). Cobra (*Ophiophagus hannah*) is employed to treat tonsils (Borah and Prasad, 2017a). Common warthog (*Phacochoerus africanus*) is employed to treat AIDS (Kendie et al., 2018). Porcupine (*Hystrix* spp.) is employed to treat diabetes and stomach scramble (Kendie et al., 2018). Spotted hyena (*Crocuta crocuta*) is employed to treat erythroblastosis (Kendie et al., 2018). Gazelle (*Gazella* spp.) is employed to treat syphilis (Kendie et al., 2018). Olive baboon (*Papio anubis*) is employed to treat AIDS (Kendie et al., 2018). Elephant (*Elephas maximus*) is employed to treat kidney failure (Kendie et al., 2018). Common fox (*Canis* sp.) is employed to treat internal problems (Kendie et al., 2018). Ray's bream (*Brama brama*) is employed to treat eye diseases (Vallejo and González, 2014a). Nile tilapia (*Oreochromis niloticus niloticus*) is employed to treat sharpened sight (Vallejo and González, 2014a). Snow leopard (*Panthera uncia*) is employed to treat respiratory disorders (Haq et al., 2020). House crow (*Corvus splendens*) is employed to treat aphrodisiacs (Vijayakumar et al., 2015a). Cow (*Bos primigenius taurus*) is employed to treat arthritis (Vijayakumar et al., 2015a), and vision (Chellappandian et al., 2014). Flat-headed rock agama (*Agama wanzae*) is employed to treat dysentery (Vats and Thomas, 2015).

Same way carapaces of turtles mainly consist of “ β -pleated sheet keratin” (Alibardi and Toni, 2006), “keratinocytes”, “melanocytes”, “lipids” (Balani et al.,

2011) and “mineralized collagen fibrils” (Currey, 2013). Carapaces of turtles are mainly employed in traditional pharmacology. Indian Flap-shelled Turtle (*Lissemys punctata andersoni*) is employed to treat cough (Vijayakumar et al., 2015a), and allergy (Altaf et al., 2018; Altaf et al., 2020). Yellow-footed tortoises (*Chelonoidis denticulata*), side-necked turtles (*Phrynops geoffroanus*) are employed treat hemorrhage (Alves et al., 2009). Brazilian three-banded armadillo (*Tolypeutes tricinctus*) is employed to treat cough (de Melo et al., 2014).

Literature shows that scales of various species i.e. Chinese pangolin (*Manis pentadactyla*), grey tinamou (*Tinamus tao*), Indian pangolin (*Manis crassicaudata*) and snakes (Serpentes) are employed to treat different illnesses fever, poison (Yeshi et al., 2017), impotency (Altaf et al., 2017; Altaf et al., 2018), snakebite (Barros et al., 2012; Haileselasie, 2012b).

Ethnomedicinal applications of urine is observed in multiple animal species like a camel (*Camelus* spp.), cow (*Bos* Spp.), goat (*Capra* spp.), horse (*Eqqus* spp.), human (*Homo sapiens*), mainland serow (*Capricornis sumatraensis*), pigs (*Sus* spp.), rock hyrax (*Procavia capensis*) for the treatment of burns (Kim and Song, 2013), cold, coughs (Belay, 2015), anaemia (Vijayakumar et al., 2015b), diabetes (Betlu, 2013), disinfectant (Piluzza et al., 2015), ear pain (Altaf et al., 2017; Altaf et al., 2018), emollient, (Benítez, 2011), epilepsy (Belay, 2015; Borah and Prasad, 2017a), fever (Vijayakumar et al., 2015b), jaundice (Shoukat et al., 2020), skin infection (Chellappandian et al., 2014; Vijayakumar et al., 2015a), syphilis (Vats and Thomas, 2015), tuberculosis (Bagde and Jain, 2013), wound (Borah and Prasad, 2017a; Bullitta et al., 2018).

Similarly, eggs are a good source of protein and vitamins. The fact that the body cannot synthesize the vitamin, as well as its critical relevance in metabolism, establishes its critical function in life (Fidaleo et al., 2021). These are applied to cure fever, cold, blood pressure, weakness, eye-side pain, cold, breast cancer, CNS, asthma, diabetes, diabetes, rheumatism, stuffy nose, flu, burns, otic infection and night blindness (Tariq, 2020).

Milk is important for humans and mainly consists of lactose, ash, water, fats, and proteins. Milk is employed to treat various ailments like measles, diabetes, pain, cancer, tuberculosis, gastritis, cough, eye, arthritis and impotency (Aslam and Faiz, 2020).

Feather is utilized as a biomaterial since it is inexpensive and environmentally safe. Feathers are made up of -helix and -sheet. Bird feathers are employed for both ornamentation and play. Traditional medicine makes use of many species' feathers e.g. *Ceryle rudis*, *Columba livia*, *Coragyps atratus*, *Corythaeola cristata*, *Coryus splendens*, *Meleagris gallopavo*, *Nothura boraquira*, and *Phalacrocorax brasilianus* employed for treatment of typhoid, cough, asthma, and flu. These are applied for as nano-particles, cells, antibacterial activity, and wounds and are also employed in cosmetics industries. Oxides of Graphene and its products are applied for fibres, thermoplastic, biomaterial, protein, wound healing, tissue, leather, electrodes, formation of paper, fire-resistant, feeding supplements, bio-plastic, bio-fertilizer, and bio-composites (Adil and Tariq, 2020).

The main component of Honey is vitamins, sugars, disaccharides, water, proteins, minerals, and other compounds. Honey has been used as a medication in

old-style medicine to medication cold, myalgia, gastritis, snake-bite, eye, skin, diarrhoea, migraine, burn, spleen, mouth, hypertension, urinary system, throat pain, diabetes mellitus, cancer, asthma, tonsils and cough. Honey is also utilized in nanomedicine to cure various ailments and acts as an anti-apoptosis, anti-proliferative, antidiabetic, antioxidant, antibiotic, anti-cataract, anti-inflammatory, antifungal endophthalmitis, blood pressure, heart, antibacterial, antioxidant and oxidative stress (Altaf and Umair, 2020; Umair and Yaqoob, 2018).

The liver of animals has the highest protein (Kakimov et al., 2018) (i.e. glycoproteins, ferritin, globulin, albumen, and ferrin), vitamin (i.e. vitamin A and B complexes), and fat (i.e. phosphatides, triglycerides, arachidonic acid and linoleic acid) (Malvestiti et al., 2007).

Published data show that the liver of many animal species is utilized to cure various illnesses. Toad (*Bufo* sp.) is used to treat poisons (Yeshe et al., 2017). Spotted owl (*Athene brama*) is used to treat rickets (Vijayakumar et al., 2015b). Common quail (*Coturnix coturnix*) is utilized to cure fever (Vijayakumar et al., 2015a; Vijayakumar et al., 2015b). Barn owl (*Tyto alba*) is utilized to cure neurological problems (Dey et al., 2017), and rickets (Vijayakumar et al., 2015b). Cow (*Bos* sp.) is used to treat fever (Vijayakumar et al., 2015a), and anemia (Alves et al., 2012; Kendie et al., 2018). Porcupine (*Hystrix* sp.) is used to treat stomachache (Belay, 2015), and diabetes (Kendie et al., 2018). Spotted hyena (*Crocuta crocuta*) is used to treat skin infections (Kendie et al., 2018). Goat (*Capra aegagrus*) is used to treat anemia (Chellappandian et al., 2014), and trachoma (Kendie et al., 2018). Hen (*Gallus gallus domesticus*) is used to treat wounds (Kendie et al., 2018). Marmots (*Marmota himalayana*) are used to treat bone disorders (Haq et al., 2020). A Common Otter (*Lutra lutra*) is used to treat reproductive disorders (Haq et al., 2020). Pig (*Sus* spp.) is used to treat cancer (Bagde and Jain, 2015a). Skunk (*Conepatus* spp.) is used to treat Lung problems (Hernandez et al., 2015), and rheumatism (de Melo et al., 2014). Crab-eating fox (*Cerdocyon thous*) is used to treat anaemia back pain, and rheumatism (de Melo et al., 2014). Wolf (*Canis lupus*) is employed to treat anemia liver diseases (Shoukat et al., 2020) and desert hare (*Lepus nigricollis dayanus*) is employed to treat anemia paralysis (Altaf et al., 2017).

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