

Short Communication

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Malic acid and fumaric acid contents in commonly available forages of ruminant animals

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Abstract

An experiment was conducted to find out the malic acid and fumaric acid content of commonly available forages for ruminants by gas chromatography (GC). Six samples of sixteen commonly available fodder crops from various places of Tamil Nadu used for feeding ruminants were collected, dried and stored in an airtight container for malic acid and fumaric acid estimation. There was no significant difference in malic acid and fumaric acid contents between grasses/ shrubs and tree fodders. Among grasses/ shrubs, *Medicago sativa* contained higher level of malic acid (0.596%) and *Saccharum officinarum* contained lower level of malic acid (0.162%). The malic acid content of other grasses/ shrubs was ranged from 0.217 to 0.313%. The *Moringa oleifera* (0.411%) had higher level of malic acid and *Sesbania grandiflora* (0.127%) had lower level of malic acid among tree fodders. The fumaric acid content was also highest in *Medicago sativa* (0.264%) and lowest in *Pennisetum typhoides* x *Pennisetum purpureum* (0.051%) in grasses/shrubs. Among tree fodders, *Moringa oleifera* also contained the maximum percentage of fumaric acid (0.182%) followed by *Sesbania grandiflora* (0.170%), *Azadirachta indica* (0.132%) and least in *Leucaena leucocephala* (0.062 %) and *Acacia nilotica* (0.041%). A trend was observed that the fumaric acid content was lower when compared to the malic acid content in all forages. It was concluded that the forages which contained higher level of malic acid and fumaric acid can safely be included in the ruminant ration to reduce methane emission and increase productivity.

Keywords: Forages, Fumaric acid, Malic acid, Ruminant animals