



Figure 8 Structural formulas of (1) biotin and related compounds: 2, disnorbiotin; 3, tetranorbiotin; 4, bisnorbiotin methyl ketone; 5, tetranorbiotin methyl ketone; 6, biotin sulfoxide; and 7, biotin sulfone.

for $4.0 \pm 3.2\%$, and biotin sulfone for $3.6 \pm 1.9\%$. After intravenous administration of $18.4 \mu\text{mol}$ of biotin, the urinary excretion of biotin metabolites increased 21–130-fold above baseline values.

IX. FOLIC ACID

The main compound of folates, members of the vitamin B complex, is pteroyl-L-glutamic acid (folic acid). Folic acid does not occur naturally but is used to fortify food because it is more stable than naturally occurring folates; tetrahydrofolates usually exist in the polyglutamate form with up to 12 molecules of glutamic acid (Fig. 9).

A TLC system comprising cellulose powder (MN300 UV₂₅₄), 3.0% (w/v) NH_4Cl , and 0.5% (v/v) 2-mercaptoethanol gives good resolution of pteroylmonoglutamates and several related compounds (Table 9) (39). This TLC system is used to evaluate the transport and metabolism of reduced folates in blood.

Table 8 R_f Values of Authentic Standards of Biotin Metabolites and Putative Biotin Metabolites on TLC

Compound	Solvent I	Solvent II
Unknown 1	0.49	0.17
Biotin sulfone	0.49	0.17
Unknown 3	0.78	0.29
Bisnorbiotin methyl ketone	0.78	0.29
Tetranorbiotin	0.57	0.21
Tetranorbiotin methyl ketone	0.74	—
Tetranorbiotine- <i>d</i> -sulfoxide	0.29	0.05
Unknown 6	0.22	0.01
Tetranorbiotin- <i>l</i> -sulfoxide	0.22	0.01

Separation was on microcellulose plates. Solvent I, 1-butanol–acetic acid–water (4:1:1); solvent II, 1-butanol.

Source: Ref. 37.