Supplementary

Table 1. Experimental diet compositions.

Item (g)	Control diet	High fat diet
Sucrose	33.13	8.85
Dextrin	29.86	0
Casein—Vitamin, Tested	18.96	25.85
Powdered Cellulose	4.74	6.41
Maltodextrin	3.32	16.15
Soybean oil	2.37	3.23
Lard	1.90	31.66
Potassium Citrate, Tribasic Monohydrate	1.56	2.13
Calcium Phosphate	1.23	1.68
DIO Mineral Mix	0.95	1.29
AIN-76A Vitamin mic	0.95	1.29
Calcium Carbonate	0.52	0.71
L-Cystine	0.28	0.39
Choline Bitartrate	0.19	0.26
FD&C Yellow 5 Lake	0.05	0.05
Total	100	100

Table 2. Mice morphologic parameters.

	Control	HF
Body weight at start (g)	22.4 ± 0.2	22.2 ± 0.1
Body weight at the end (g)	31.5 ± 0.5	42.2 ± 1.3 *
Adiposity index	4.9 ± 1.4	10.3 ± 0.9 *

Values are presented as means ± SEM. Student's t-test was used, p values: *. $p < 0.05$ between control group and high fat group (HF) for 11 weeks.

Table 3. Food intake parameters.

	Energy intake (kcal/g)	Vitamin D intake (UI/g/day)
Control	14.4 ± 0.8	3.4 ± 0.2
HF	14.2 ± 0.5*	3.6 ± 0.2 *

Values are presented as means ± SEM. Student's t-test was used, p values: *. $p < 0.05$ between control group and high fat group (HF) for 11 weeks.

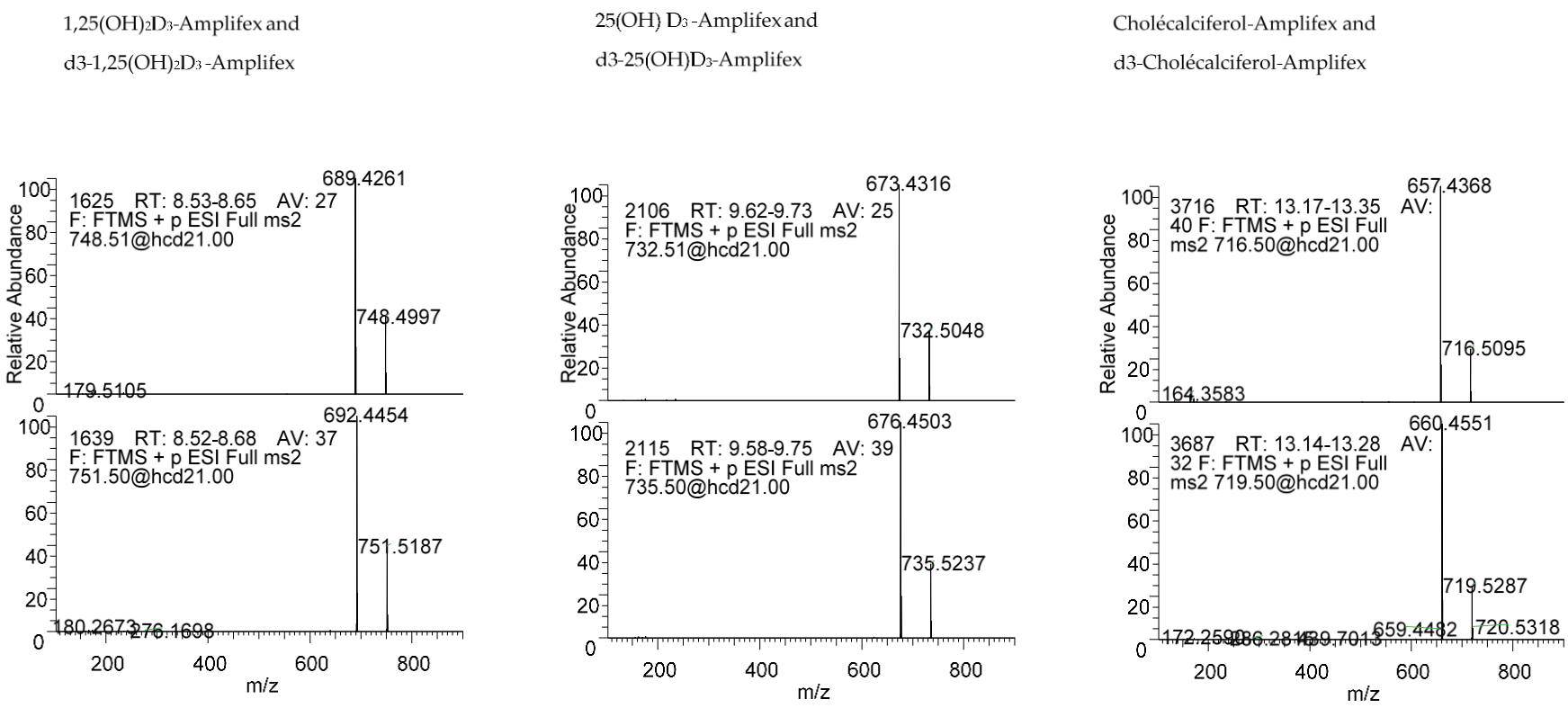

Figure 1. MS/MS spectrum of 1,25(OH)$_2$D$_3$, 25(OH)D$_3$ and cholecalciferol derivatized with Amplifex reagent and their respective deuterated forms.

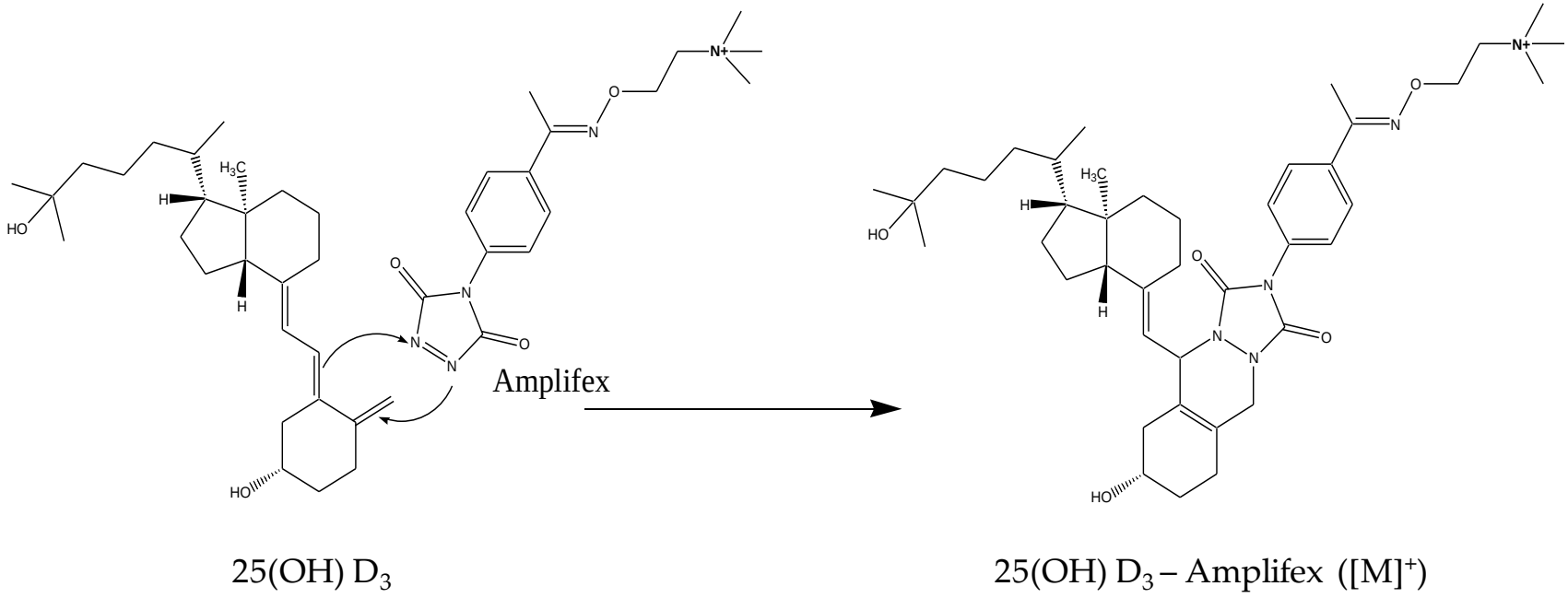

Figure 2. Derivatization reaction.

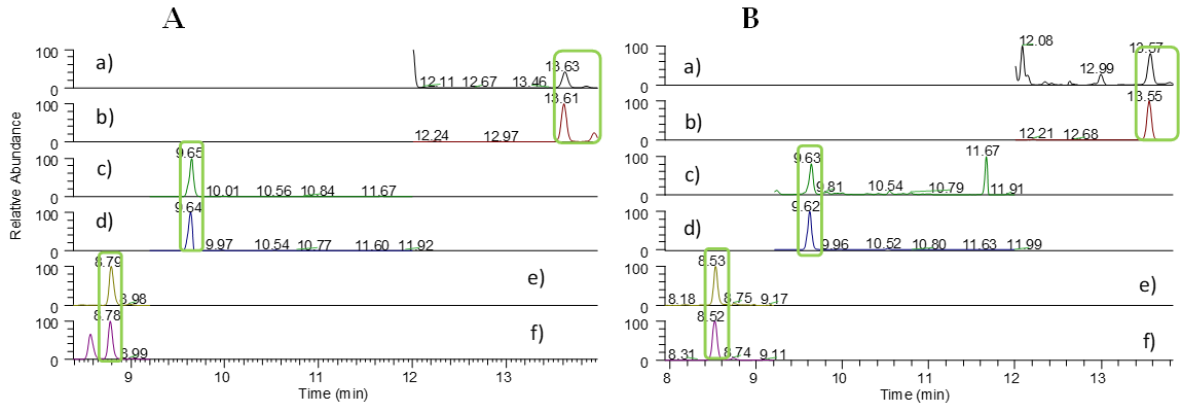

Figure 3. Extracted Ion Chromatography of plsma (**A**) and adipose tissue (**B**) sample derivatized with Amplifex reagent (a) m/z 657.43 extracted from the MS/MS spectrum of m/z 716.50 ion of cholecalciferol-Amplifex, (b) m/z 660.45 extracted from the MS/MS spectrum of m/z 719.50 ion of d3-cholecalciferol-Amplifex, (c) m/z 673.43 extracted from MS/MS spectrum of m/z 732.51 ion of 25(OH)D_3-Amplifex, (d) m/z 676.45 extracted from MS/MS spectrum of m/z 735.50 ion of d3-25(OH)D_3-Amplifex , (e) m/z 689.43 extracted from MS/MS spectrum of m/z 748.51 ion of 1,25$(OH)_2$D3-Amplifex and (f) m/z 692.44 extracted from MS/MS spectrum of m/z 751.50 ion of d3-1,25$(OH)_2$D3-Amplifex.