Table 1. Relative Incipient Bending and Plasticity of the Pea Stem Piece pretreated with Indole-3-Acetic Acid, Gibberellin or Water for 2 hr.

For *A*, *B*, *C*, *C'*, *D* and *E*, see Fig. 2. Heavy load, 686 mgm.; light load, 456 mgm. Average of five samples and probable error

	Incipient bending $\frac{B-A}{C'-A}$ (per cent)		Plasticity (after heavy loading) (per cent)	
	Heavy load	Light load	$\frac{D-A}{C-A}$	$\frac{E-A}{C-A}$
Indole-3-acetic acid (10 mgm./l.)	—*	67·8±2·5	60·7±1·8	54·7±2·7
Gibberellin (20 mgm./l.)	56·4±3·9	49·3±5·1	51·9±1·3	44·7±1·7
Control	66·6±4·6	56·7±5·4	54·8±2·1	50·9±3·1

* Too much bending occurred within 20 min.

It is therefore suggested that gibberellin has an effect opposite to that of auxin on the extensibility and particularly the plasticity of the stem. Details, together with further studies, will appear elsewhere.

S. Yoda
J. Ashida

Department of Botany,
Kyoto University,
Kyoto, Japan.
July 2.

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Effect of Gibberellin on Sunflower Tissue Culture

Recently Nickell[1] reported the effect of gibberellin on several plant tissues grown *in vitro*. The results were generally non-specific. Sunflower petiole crown-gall tissue growth was inhibited rather drastically by 10 p.p.m. of gibberellin, whereas tobacco and sweet clover were somewhat enhanced by it. Schroeder and Spector[2] showed marked increased effect of gibberellin on growth of mature citron explants in the presence of indoleacetic acid, but very limited growth in its absence. The accelerating influence or interaction of indoleacetic acid on other growth factors (for example, kinetin[3]) and gibberellin[4,5] has been a well-observed fact in many experiments and observations relating to correlation of growth factors[6].

In the experiments reported here tissue of sunflower origin[7] was used. The method was similar to that used in former experiments with this tissue[8]. The gibberellin was added to the media containing indoleacetic acid or lacking it to make final concentrations of 0·001 to 1·0 p.p.m. for habituated tissue (H_h), and 0·2 to 200 p.p.m. for tumour tissue (Pv). The media (pH 6·0) were autoclaved at 20 pounds pressure for 15 minutes. There were 5 replicates at each concentration of gibberellin. The weights were taken after 8 weeks growth.

The results are strongly in agreement with Nickell, indicating a non-specific influence. Tumour tissue appears to be generally inhibited by the addition of gibberellin. There is no significant increase in any of the concentrations. Tumour tissue, as might be expected[8], grows better on medium lacking indoleacetic acid. Habituated tissue shows no response to gibberellin at the relatively low levels used.

Table 1. Growth of Sunflower Tumour Tissue on Gibberellin
Cultures 8 weeks old (10–5–58 to 3–7–58). Wet weight (gm.)

Gibberellin (p.p.m.)	GBA* − indoleacetic acid	GBA* + indoleacetic acid
0	1·67	0·62
0·2	0·98	0·31
2·0	0·76	0·51
20·0	0·86	0·79
200·0	0·64	0·39

* GBA consists of Gautheret (½ Knop) medium, Berthelot minor elements and addendum of vitamins, amino-acids, adenine sulphate.

Table 2. Effect of Gibberellin on Habituated Tissue of Sunflower
Cultures 8 weeks old (21–12–57 to 13–2–58). Wet weight (gm.)

Gibberellin (p.p.m.)	GBA + indoleacetic acid
0	0·35
0·001	0·28
0·01	0·32
0·1	0·36
1·0	0·36

These results are similar to those recorded for these same strains of tissues (plus the normal strain of sunflower callus tissue, H_n) grown on the basal media, GBA (see Table 1), with and without indoleacetic acid, in the presence of kinetin at 0·01, 0·1 and 1·0 p.p.m.[9]. In this experiment, also, H_h and H_n showed very little deviation from the controls, especially the normal callus, H_n.

The results of Nickell and those reported here seem to suggest a general principle in plant tissue culture, of the callus type, namely, that when tissue cultures which have been grown for many passages on specific media are subjected to certain new factors, such as gibberellin and kinetin, they no longer adapt or respond as rapidly as do freshly cut explants such as carrots used for certain chemical assays[10] or the citron tissues of Schroeder and Spector. These slices are more like the original tissues *in vivo* where gibberellin especially is most demonstrative in its effects on growth.

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James H. M. Henderson

Carver Foundation,
Tuskegee Institute,
Alabama.
July 15.

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Synthesis of Blood Protein by the Fat Body in the Silkworm, *Bombyx mori* L.

The concentration of protein in the blood of insects changes remarkably in the course of metamorphosis[1]. I have shown that the concentration of blood protein increases after the middle period of the last larval instar[2] in the silkworm. It is not yet clear, however, what organ is concerned in the synthesis of blood protein in larval stage, although there are reports by Sissakian and Kuvaeva[3] that